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Military Review

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The MILITARY REVIEW disseminates modern military thought and current Army doctrine concerning command and staff procedures of the division and higher echelons and provides a forum for articles which stimulate military thinking. Authors, civilian and military alike, are encouraged to submit articles which will assist in the fulfillment of this mission.

POLICY.

Unless otherwise indicated, the views expressed in the original articles in this magazine are those of the individual authors and not necessarily precisely those of the Department of the Army or the U. S. Army Command and General Staff College.

Editor.

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The Army and Strategic Mobility

George Fielding Eliot

GLOBAL mobility is the greatest strategic advantage possessed by the United States. It is the gift of geography—the insular, two-ocean position occupied by the continent of North America, and the land-locked position of the Soviet Empire. Like all advantages of position, however, it must be understood and implemented to be useful. We cannot maintain true strategic mobility as long as our thinking tends to be immobile.

Unhappily, our popular thinking on this military question currently is confused by the notion that limited and peripheral operations involve a danger that they may spread into general nuclear war.

This is mere rationalization, quite unsupported by experience. Great international wars do not grow out of chance outbreaks of local hostilities. They are the result of the deliberate decisions of governments. The record of the past two centuries offers no exception to this rule. All the major wars of that period came about because one or more great powers decided to resort to arms to achieve a chosen objective, whether of conquest or security. In no case has a small war "spread" until it became a big one. The decision to go to war has often been based on a conviction of military superiority and hence anticipation of a quick and comparatively cheap victory. Local conditions, or incidents, have not been the *causes* of any great wars, although they have been seized upon occasionally as convenient excuses by governments already determined upon hostilities.

Capitalize on Mobility

The conditions of the present time give no room for conviction that a resort to nuclear war could serve any national objective save that of mutual annihilation —which scarcely can be called an objective in any rational view—and certainly rule out all anticipation of swift and inexpensive victory. Indeed, the major nuclear armaments of the United States and Great Britain are avowedly directed to the prevention of such a war by the exercise of an imperatively deterrent influence on the minds of the Soviet leaders, and there are indications that all-out nuclear conflict has small attraction for the Kremlin. The means of deterring the Soviet Government from pursuing its ends by piecemeal methods have not been so clearly established. Indeed, in this area our policy in practice evolved into a series of defensive actions to meet hostile initiatives as these developed. This is not deterrence at all, but mere containment.

Surely a far more promising policy could be produced, based on the world-wide mobility of the United States and her allies. This mobility is derived from:

1. Command of the sea and of the air-space above the sea.

2. Outlying bases and overseas deployment of forces.

3. The support of a widespread system of alliances, including many states possessing effective local forces, the whole being linked together by global sea-air

Limited and peripheral wars result from deliberate decisions of governments. They do not "spread" into big wars. The basic military peripheral deterrent is an adequate ground force and its delivery systems

lines of communication and supported by our military aid program.

This mobile capability can be applied usefully to the support of American and free world policies *as a true deterrent to prevent local Soviet aggression* and to undertake local initiatives of our own where feasible. But this would require that the policies to be supported should correspond, in initiative, flexibility, and imagination, to the qualities possessed by the military instruments on which they depend. In the absence of such policies our Military Establishment constantly is exposed to the arguments of the economists that the implementation of strategic mobility (in any other sense than that required for the maintenance of the nuclear deterrent) is a needless expense.

Limited Wars Stay Limited

It is in seeking to combat such arguments that our military leaders—more particularly, Army spokesmen—have shown an unfortunate tendency to preserve the false premise that big wars grow out of little ones by overemphasizing this possibility in seeking to justify our requirement for dealing with peripheral conflicts. "One facet of the Army's interest in strategic airlift," testified Major General Earle G. Wheeler, Director of Plans, Office of the Deputy Chief of Staff for Operations, before the Symington committee, "stems directly from national security policy which requires the United States to have military forces with sufficient strength and mobility to react swiftly to Communist local aggression in order to defeat that aggression *and prevent its broadening into general war.*" (Author's italics.)

It is this last phrase which confuses the issue, by bringing into the consideration of limited operations the dread sanctions of nuclear conflict which do not belong in this context. Not only has this idea no basis in the history of modern warfare, but specifically the record of the Soviet Union does not suggest that the cautious men of the Kremlin (to whom the very adjective "adventuristic" is a term of ultimate reproach) would risk the life of their system for any minor or secondary objective. They have, in fact, invariably cut their losses and looked elsewhere for recompense when confronted in local initiatives by determined resistance: as in Iran, Greece, Berlin, Korea, Trieste, and quite recently in Jordon.

Avoid Nuclear Immobility

American military thought in the atomic age has not managed to separate its concept of local and limited conflicts on the perimeter of the Soviet empire-bloc from the concept of all-out nuclear war, or at least of maximum effort and risk in each such conflict by the USSR. The idea that a limited risk of our own might be countered by no more than a limited risk by the enemy, and the companion idea that our mobility gives us a vast advantage in the concentration of force in such operations, has not been sufficiently expounded. This kind of all-or-nothing thinking is a form of nuclear immobility. If persisted in until it crystallizes into accepted doctrine, it will assuredly deprive us both of mobile thinking and mobile military power.

Yet when we examine the post-1945 record of Soviet local aggressions we find that each of them was directed toward the

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accomplishment of a limited object, and involved only a limited risk on the part of the Communists. Such enterprises are, in fact, no more than piecemeal attempts to subtract resources from the free world and add them to the Soviet bag, in the meanwhile undermining the confidence of the remaining free peoples to soften them for future attempts of like character. Nowhere is there the smallest indication, other than blustery verbiage, that the Kremlin has been, at any time since 1945, prepared to risk a general war to accomplish any purpose which it has entertained during that time, except the over-all purpose of national security.

This being so we might well be thinking and planning on the basis of how our ability to move swiftly and in force to any threatened area may be demonstrated, made clearly visible, and employed as a continuing deterrent against local aggression. From that concept we shall move very readily to the concept of a more active and vigorous policy in which, on suitable occasion, may be based useful initiatives of our own.

Use of Mobile Threat

The Army's part in this concept is the historic role played throughout history by the army of a maritime (that is, strategically mobile) power. It is today, with air mobility added to sea mobility, no different in principle than it was when the sailing ship was its mobile instrument. It is summed up in the trenchant phrase of Sir Julian Corbett (*England in the Seven Years' War*) when he writes of "the peculiar deterrent effect of troops upon the sea." The instance to which Sir Julian here referred is remarkably instructive to us today. It occurred in 1760 when the limited British objective of the war—the liquidation of the French colonial system in North America—had been substantially accomplished, and the chief remaining British purpose was to deter the French from obtaining some compensating advantage in Europe or India to use as a lever at the peace settlement. The main French armies were deployed on the Rhine against Great Britain's ally, Frederick the Great of Prussia, who was in an unfavorable situation. In India the French were clinging desperately to their last foothold at Pondichery, awaiting relief by their naval squadron based on Mauritius.

The device used to upset the French plans in both theaters by William Pitt the Elder (afterward Earl of Chatham), who then directed British policy, was the simple deterrent pressure of mobile amphibious power. He concentrated a force of seven battalions (later raised to 10) at Portsmouth and provided it with transports and a naval escort under Commodore Augustus Keppel, taking care that this preparation should become known in France.

Already during the course of the war the French had suffered hard blows from British amphibious descents on their home coasts and on their overseas possessions. They were correspondingly nervous. A wide range of speculation as to the destination of the new expedition exercised the ingenuity of French statesmen and soldiers. "One," says Corbett, "was sure that it was going to combine with Amherst against Martinique. Another guessed Belleisle or the French coast. The Spaniards were sure that it had been intended for Ostend . . . and were equally certain that it was now going to Minorca." Another report insisted that the objective was Mauritius, the French naval base in the Indian Ocean. As a result, every move—the arrival of a fresh battalion, the appearance of the commodore at St. Helens to hoist his broad pennant—caused a fresh outbreak of alarm along the French coast. "Troops were passed from Normandy to Britanny; Brest and Bordeaux were in a feverish state of alarm." In the Indian

Ocean "the menace was enough to upset the whole position of the French in the east." The French admiral, d'Aché, preparing at Mauritius to hurry to the relief of besieged Pondichery, received strict orders from home on no account to leave the supposedly threatened island.

Mobile Threat Sufficient

As a result, the force of the French offensive in Germany was weakened seriously, achieving only a partial success which was more than outbalanced by Frederick's victories at Liegnitz and Torgau, and the French also lost their last foothold in India—a blow from which their hopes of empire in that country never recovered. *Yet the force that had produced these far-reaching effects did not, in fact, stir from Portsmouth Harbor*: having wrung the last ounce of advantage from it, Pitt on 11 December ordered the troops to disembark and return to their home stations for the winter. A better example of the deterrent effect of troops provided with strategic mobility hardly could be found.

Does it require any very great effort of the imagination to apply the basic principle of Pitt's strategy to present American strategic needs?

Of course, today's time limits are much shorter than those of 1760. Pitt's concentration was devised in April, the assembly of the troops began in the summer, the first French warning went out to Mauritius in June, and the weakened French offensive on the Rhine got under way in October. All this time, French strategy was enfeebled and confused by daily anticipation of word that the expedition had put to sea—after which the blow might fall anywhere: in a matter of a few days on the French coast, or of a few weeks in the West Indies, or a few months in the Indian Ocean. Since French reaction on the Continent would be limited to the marching pace of infantry on bad roads, or at sea by the uncertainties of the wind and the sluggishness of ships long out of dock, they were deterred correspondingly from any enterprise that might leave a vital interest uncovered at the critical moment.

A comparable deterrent effect today would require implementation in terms of the speeds and ranges now available both to the aggressor and to the deterrent force.

Need Two Deterrent Forces

The "requirements of deterrence" in the field of limited operations have as their target the process of Soviet decision—the implanting of serious doubt that any contemplated Soviet local aggression or subversion will be successful, coupled with a continuing anxiety as to the security of existing Soviet outposts and dependencies. The principle is the same as in 1760, but time factors must be reckoned in hours instead of days, and days instead of weeks or months. Upon these considerations we must fashion the appropriate military instrument to achieve our purpose.

Just as the basic military instrument appropriate for the nuclear deterrent is a preponderance of nuclear weapons and their delivery systems (including the defense of the latter against surprise neutralization) so *the basic military instrument appropriate for the peripheral deterrent is an adequate force of ground troops and their delivery systems*—in the sense of air, sea, and base facilities for their timely movement to wherever their presence may be required.

In every case of a Soviet aggressive initiative since 1945, ground troops have been required to deal with it. The protection of people, of homes and workshops, of entire communities, and even nations against aggressors on the ground with weapons in their hands has been the essential element in the denial of Soviet purpose and the preservation of confidence among free men and women that they

would not be abandoned to the enemy. Thus in Greece the issue turned upon the ability of General James A. Van Fleet to devise a tactical system by which villages which had been bypassed by the operations of the field forces could be protected against descents by guerrilla bands, without diverting the mobile units of the Greek National Army from their main objectives. A similar condition was encountered by Great Britain's General Sir Gerald Templer in Malaya. In the blockade of Berlin, airlift was the solution, but it was the presence in the beleaguered city of United States, British, and French troops which secured the inhabitants against overt attack. Strong naval and air support were features of the Korean operations, but the issue was decided by the ground forces —rising, in this instance, to an entire American field army, plus a British division, upwards of 20 Republic of Korea divisions, and the equivalent of a division or more from other United Nations participants. The rearmament of Turkey, Japan, and Germany in each case has been based chiefly on rebuilding the army; so has the defense of Israel against Arab pressures on her frontiers, as exemplified in the recent operations in the Sinai Peninsula. The security of Jordan was established by the restoration of loyal Bedouin officers to the command of the army. In South Vietnam, President Ngo-dinh-Diem's reorganized army is the cornerstone of his authority. And it is notable that American inability to intervene in North Vietnam turned on the infeasibility of providing a sufficient army force for the purpose, as General Matthew B. Ridgway points out.

Ground Capability Is Key

The future ability of the United States to deter Communist aggressive enterprises of local character will be dependent on our known ability to intervene promptly *on the ground*—and our ability to defeat such enterprises, if actually undertaken, will be based on the prompt arrival of ground forces capable of affording protection to the threatened area and its inhabitants. The presence of air and sea forces may have some deterrent effect, as did the recent move of the Sixth Fleet to the Eastern Mediterranean in support of Jordan's resistance to subversion; but this effect may not survive challenge, since the weapons of air and sea forces cannot always be employed in such instances. It is notable that the clincher in the Jordan affair was Vice Admiral C. R. Brown's brilliant idea of allowing his Marine battalion to go ashore on liberty in Beirut, less than 50 air-miles from the Jordan frontier.

Time may well be of great importance both in deterrence and actual intervention. Deterrence will hardly be effective if the enemy can calculate on presenting us with a *fait accompli* before we can get to the spot with the type of force needed to thwart his purpose; while the timely arrival of a comparatively small force may be of greater value, morally and physically, than the belated arrival of a much larger one.

As a practical matter under existing conditions, the problem boils down to establishing a capability for rapid movement of troops from the continental United States, Germany, Japan, or the Hawaiian Islands to overseas destinations. The target area is global, hence the means of transportation must be adequate to satisfy global time and distance requirements. Two methods of transportation must be considered—airlift and sealift. Airlift is faster, sealift more capacious. It may be assumed that sealift will catch up and take over the main task of transportation after the first 30 days. Sealift, which is provided by the Navy, is available in adequate quantities, or can be made available in any conceivable limited emergency without impairing other needs. But with airlift this is not so.

Airlift Is the Problem

The provision of strategic airlift is a function of the Air Force. The Army has long been pressing for the direct allocation of a reasonable amount of strategic airlift for its exclusive use. This has been resisted by the Air Force on the ground that it involves fragmentation of total airlift capacity, which is used for many other purposes than for troop movements. Thus a considerable portion of the available airlift is earmarked in any critical situation for the use of the Strategic Air Command (SAC) for forward deployment of bombs, engines, spare parts, and POL. The Tactical Air Command (TAC) also will require strategic airlift, as will the Navy. The actual day-to-day control of most of our long-distance airlift is in the hands of the Military Air Transport Service (MATS), operationally responsible to the Air Force Chief of Staff. MATS provides airlift for all three services on a worldwide basis, and at any given moment a large proportion of its aircraft will be actively in use. The Air Force view is that direct allocation of airlift to the Army would be a violation of the principle that flexibility is the key to the efficient use of airpower in all its aspects. It is this principle which also leads the Air Force to resist direct allocation of tactical air support to Army commands.

Under existing conditions the authority for allocating airlift and establishing priorities for its use in emergency situations is vested in the Joint Chiefs of Staff. The Air Force view is that the Army's needs for airlift could be met by such allocation, having due regard to other existing needs which would have to depend, like other difficult decisions, on the judgment of the Joint Chiefs. The Army feels that precious time might be wasted in this process—including gathering in the allocated airlift from heaven knows where—but, more important, they would come up immediately against the number one priority, for a large proportion of the airlift, of SAC.

Priorities May Change

Here, again, we find the paralyzing influence of absorption with nuclear war. *Must it be rigidly assumed in advance that in every limited emergency, all the "customers" for airlift will need the immediate exercise of their respective priorities based on "big war"? Are situations not readily conceivable in which, in fact, the number one priority for airlift would be the Army's, since the immediate dispatch of ground troops to the trouble spot would be the first thing needed?* Of course, this might mean taking a calculated risk that SAC's airlift requirements could be reduced for the period of time required for the proposed airlift of troops and supplies. This, it must be admitted, would not be a decision easily reached as long as our limited war concept remains distorted by the "big wars grow out of little ones" illusion—an illusion which, in any given instance, is likely to be reinforced by Soviet bluffing, as instanced by the "rockets-on-England" note of Marshal Nikolai Bulganin during the Suez crisis.

We shall need tougher nerves as well as clearer concepts.

Service Emphases Vary

Sound solutions for such problems are not made easier by the very natural Air Force tendency to think in terms of its top-priority missions—strategic bombardment and continental air defense—both of which are concerned with "big war." The Army, which has—also quite naturally—given far more consideration to limited war than has the Air Force, has had trouble in selling the Air Force on the strong possibility that limited rather than major war may indeed be the more likely prospect for the immediate future, with the consequence, among other things, that limited demands for airlift for troops may be the rule rather than the exception.

The Army also feels that Air Force preoccupation with its top-priority missions has led to the downrating, under conditions of budgetary stringency, of procurement of new and more capacious troop-carrying and cargo aircraft. The *C-124*, with a useful load of 16.4 tons, is the largest aircraft now available for strategic air movement of troops or supplies. Its scheduled successor is the *C-133*, a 25-ton plane; only two or three of these are now operational, and total scheduled procurement during the next two fiscal years is only 35. A larger aircraft, the 50-ton *C-132*, was programed in the budget for Fiscal Year 1958, but this item has been eliminated. *First things first*, says the Air Force. The Army retorts, *how do you know airlift won't be a first thing?*

Translated into terms of troop-movement capability within time limits measured in days, the situation is not very promising. Using practically all available airlift (an optimum assumption), one division could be airlifted from the United States to the Middle East in 21 days. This is the so-called 13,000-ton division—that is, a "division force" including extra service units and with six days of supply. The maximum *normally available* airlift capability could lift no more than a 5,000-ton division—combat elements only—which means that such a movement could be effective only if made to an area where base facilities already exist, for example, Germany.

Dispersion Undesirable

This does not quite meet the Army's stated minimum requirement for strategic airlift. Lieutenant General James M. Gavin told the Symington committee that a divisional (13,000-ton) airlift in the United States was, in his opinion, absolutely rockbottom and that there would be great difficulty in attaining this today if there were any other demands at all on the existing airlift. Moreover, there must be kept in mind the need, at the delivery end of any strategic airlift, of means for movement of the troops to their operational area. This may involve tactical airlift, shipping, and rail or road transportation. Time is the controlling factor, and the saving of time represented by strategic airlift over the major portion of the journey is the whole point of the argument.

Today, the situation appears locked on dead center, between the Army's concept of quick deployment for peripheral war and the Air Force's preoccupation with "big war." On the basis of existing programs, there is no prospect of any change during the next two or three years as far as the provision of additional airlift is concerned.

Additional overseas deployment of troops has been suggested: but this involves undesirable dispersion. The present tendency is toward reduction of existing overseas forces. Such deployments are vulnerable to political pressures, in the accentuation of which the Soviets are assiduous. It was in this way that we came near to losing our base in Iceland; the British withdrawal from Egypt and Jordan and their present difficulties in Cyprus are not encouraging, nor our own current headaches in Japan and Taiwan. Overseas storage of supplies and improvement of airbase facilities may help, but are not the entire answer either. Certainly, a higher state of readiness for movement of troop units in the United States is essential—say in terms of one complete airborne division ready to move right out at the drop of a hat. This can be accomplished as a continuing capability; but without enough constantly available aircraft and aircrews it does not mean as much as it should.

The most hopeful fact that emerges from discussion of the problem with Army and Air Force officers immediately concerned with it is that in hammering out a long succession of "position papers,"

each side has gained a better appreciation of the other's problems, and both are well aware that appropriations are not unlimited.

Joint Command Suggested

Actually, the gap between the existing positions has narrowed considerably and is far from unbridgeable. What is needed now is a fresh push to get off dead center —and it appears to the writer that one way to do this might be to establish a Joint Mobile Command, charged with the preparation of plans for the exploitation of strategic mobility as a deterrent to Soviet peripheral enterprises. One of the first missions of such a command should be to set up and carry out a series of Joint Mobile Exercises, involving, perhaps, the overseas movement of no more than one of the new "Pentomic" infantry battle groups at first. Such exercises should be related successively to the movement of troops to each of the principal areas of our possible strategic interest—for example, the Mediterranean, the Persian Gulf, and Southeast Asia. The cooperation or active participation of allied and friendly governments should be sought. Thus the exercises would serve not only to indicate the nature of the problems to be encountered and the measures required to remedy defects, but also would be demonstrations of our mobile capability visible to everyone concerned. Moreover, interservice participation in this new command would establish an atmosphere in which the approach to the solution of existing difficulties might be made easier: an accomplishment which would, naturally, require the most painstaking care in the selection of the first commander and of the principal members of his staff.

It goes without saying that the plans and exercises of this command should cover the entire area of strategic mobility in peripheral and local emergencies, and of the tactical means associated with the commitment of forces to combat under favorable conditions. The experience of the Navy and especially the Marine Corps in amphibious operations, of the Army and Air Force in airborne operations, and the local knowledge of allied forces should be drawn together and woven into a fabric of global mobility appropriate to today's requirements—both of deterrence and of the defeat of Communist initiatives if carried into the realm of action.

The Need Is Increasing

We also should keep in mind that political changes may well bring about changes in military thought which will help us adapt our military programs to the needs of the times. *As the prospect of "big war" recedes, at least for the time being, under the inexorable pressure of the nuclear deterrent, the need for the peripheral deterrent increases and surely will be further demonstrated by the enemy.* The creation of a Joint Mobile Command and the prompt activation, under its direction, of exercises demonstrating the strategic mobility of our ground forces should be in itself a useful hint to the Kremlin as well as a reassurance to our friends that they will not be left alone to face a future hour of peril.

The deterrent power of our nuclear armaments is credited by Sir Winston Churchill with having preserved Europe from Soviet attack in the years immediately following World War II. Today, Europe breathes more easily, but around the vast Communist perimeter live many free peoples who take small comfort from the nuclear umbrella. The threats they fear are of a different character: these threats can best be discounted by "the peculiar deterrent effect of troops upon the sea" and upon airborne wings.

KEEPING PACE WITH THE FUTURE--

Other Roads to Leavenworth

Colonel Edward C. Dunn, *Armor*
Faculty, U. S. Army Command and General Staff College

The size of our Active Army and the future of this Nation rest upon the success of our Reserve program.

—Secretary of the Army Wilber M. Brucker

This is the second in a series of articles expanding various aspects of "USA Command and General Staff College Keeps Pace With the Future," written by Major General Lionel C. McGarr, USA, Commandant of the College, and published in the April 1957 issue of the MILITARY REVIEW.—*Editor.*

NO OTHER army in the world is as fortunate as the US Army in the potential of its Reserve components. The vitality and variety of viewpoint, the versatility of skills, the adaptability to changing conditions, and the broad cross section of American "know-how" potentially available in our Army Reserve and National Guard are indispensible assets in the atomic age. More than two-thirds of the Reserve forces of this Nation are *Army* forces. But the Army is vitally interested in *quality* even more than quantity, when it measures its reserve strength against the challenge of deterring aggression and of keeping instantly ready to defeat aggression if it occurs.

The key to quality in the Army's Reserve components is in the peacetime training and education of their potential leaders —the corps of Reserve and National Guard officers. In case of future war this officer corps, as in past wars, will supplement the small nucleus of the Regular officer corps. Together, these two categories will furnish most of the commanders and general staff officers at division, corps, and army level, and at comparable administrative and logistical support levels.

Keep Reserves Abreast

There exists a normal procedure to bring selected officers of the Active Army to Fort Leavenworth in peacetime to attend resident Command and General Staff courses. However, relatively few of our patriotic National Guard and Reserve officers can spare the necessary time from their very busy civilian occupations to attend such resident courses. To fill the urgent need of the latter at their home stations, the nonresident programs of the College provide *other roads to a Leavenworth education.* In this era of rapid change, the nonresident programs also fill a pressing requirement for officers of the Active Army. They afford an excellent opportunity for such officers—including USA CGSC alumni—to prepare themselves for a tour at Leavenworth or in the latter case to keep themselves abreast of new organizations, techniques, and doctrine.

In its continuing effort to keep pace with the future, the U. S. Army Command and

The key to quality in the Army's Reserve components is in peacetime training and education of potential leaders. USA CGSC is preparing dynamic and advanced instructional material for off-campus students

General Staff College has given emphasis to its "off-campus" curricula. The steady flow of new weapons, ever-improving doctrine, and streamlined organizations designed to meet the radically different conditions of the atomic battlefield are producing major changes in nonresident as well as in resident instruction. In modernizing its curriculum to emphasize employment of new weapons and new organizations, the College firmly believes that "what is good for the resident student is good for the nonresident student." More than 11,000 nonresident officers (mostly from Reserve components) look to the College for command and general staff (CGS) instruction.

It is not expected that a future war will permit a lengthy training period for the bulk of our fighting divisions, nor will it provide time to mass-produce the many thousands of USA CGSC graduates immediately required. To assist in meeting such an emergency, the responsibilities of the College for nonresident instruction are to:

1. Prepare and administer extension (correspondence) courses.

2. Prepare and distribute instructional material suitable for training of the general staffs of National Guard Divisions, Reserve Divisions, and Reserve Logistical Commands.

3. Prepare and distribute programs of instruction, instructional material, and to provide academic guidance to US Army Reserve (USAR) schools for use in their five-year CGS course.

Colonel Edward C. Dunn was graduated from the United States Military Academy in 1936. He was a member of the 10th General Staff Class of the U. S. Army Command and General Staff College in 1942 and a graduate of the Regular Course in 1951. During World War II he served in Europe with the 4th Cavalry Group (VII Corps, First Army). In July 1955 he was assigned to the faculty of the USA CGSC, where he is Director of the Department of Nonresident Instruction.

Supporting Organization

The College has centralized the responsibility for these activities into a single Department of Nonresident Instruction, organized as shown in Figure 1.

To focus attention on this vital area of College responsibility, the Commandant, in 1956, gave the nonresident department director a second hat and elevated him to Assistant to the Assistant Commandant for Nonresident Instruction. The latter position makes him the principal advisor to the Assistant Commandant on Reserve components affairs and assures continuing top-level attention to the problems of off-campus education.

The internal composition of the nonresident department makes it appear somewhat like a "miniature version" of the resident faculty. All arms and services and experts in every important field are represented.

The majority of the officers assigned to the Department of Nonresident Instruction are employed in writing extension subcourses, since this is the department's most time-consuming task. Extension course writing is essentially a conversion of subjective material to objective techniques. The foremost goal of the subcourse author is to make the student think and thereby improve his decision-making ability. Considerable writing skill as well as a broad professional background is required to convert a resident unit of instruction into an effective self-teaching vehicle. The framing of sound, valid objective tactical and logistical exercises is an art. The use of objective type questions in lesson exercises and examinations, however, does permit a relatively small number of personnel to grade the thousands of answer sheets received from students.

Resident Faculty Helps

All nonresident instructional material is based upon material prepared by the other academic departments for use in resident instruction. Thus almost every member of the College faculty contributes to the ac-

complishment of the vital nonresident mission through his share in the production of instructional material.

In actual practice the resident and nonresident authors of the faculty have developed a close day-to-day working relationship. This type teamwork is essential, of course, to ensure that all instruction reflects the latest and most forward-looking doctrine. Guidance from College doctrinal agencies also is invaluable in keeping the nonresident material objective, modern, and forward looking.

The year-round flow of letters from nonresident students and after action reports from USAR schools contribute to and assist in the continuous evaluation of nonresident instructional material. The results of this evaluation are reflected in many instances in the basic resident unit of instruction.

There is a deliberate rotation of officer personnel periodically between resident and nonresident departments which further assists in maintaining the close teamwork already mentioned.

Nonresident Enrollment Up

The College's extension (correspondence) course program provides self-teaching courses of instruction at command and general staff level for eligible officers of all components of the Army. Current composition of the extension course student body is shown graphically in Figure 2. An average enrollment of 2,600 officers has been normal in recent years; however, in the spring of this year the monthly rate of new enrollments made a marked upward surge. College authorities believe that this trend is due chiefly to the influence of three factors: command emphasis

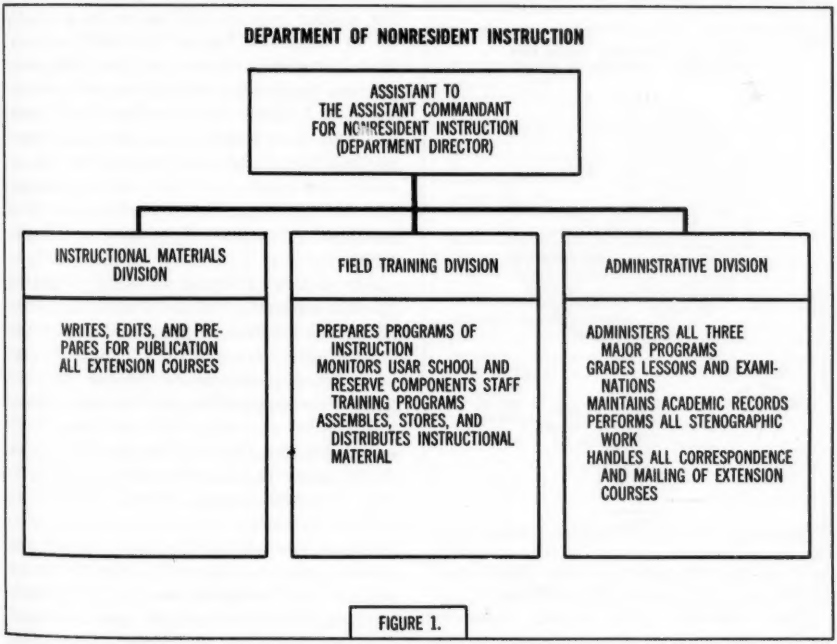

FIGURE 1.

by Department of the Army, US CONARC, and subordinate echelons on *quality* in Reserve components programs; a sincere effort on the part of many individual officers to improve themselves professionally; and increased interest generated by the College's more modern and improved material, emphasizing atomic warfare.

The College confidently expects this growing demand for its new homestudy material to continue at an accelerated rate as its new series of subcourses begin to roll off the presses this summer.

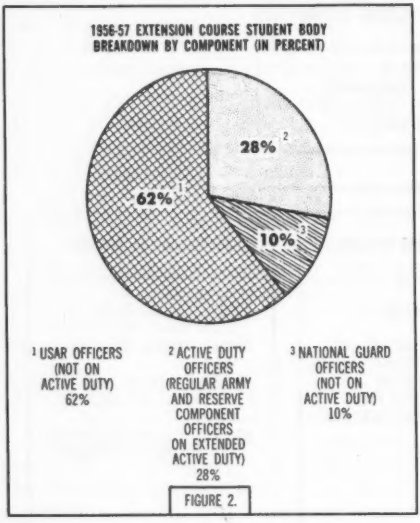

FIGURE 2.

The 1957-58 USA CGSC extension course program of 30 subcourses is discussed in detail in the 1957 edition of Department of the Army Pamphlet 350-60, *Announcement of Army Extension Courses.*

The first two subcourses to become available for delivery to the field are subcourses covering the organization, equipment, and general tactical employment of the new Pentomic infantry division (ROCID) and the reorganized armored division (ROCAD).

The new series will be the fourth cyclic modernization, that is, complete revision of its extension courses, accomplished by the College since World War II. In the past the preparation of a complete program has been scheduled over a three to four-year period. Due to the recent reorganizations of Army divisions and the impact of atomics, the College intends to complete the new program in *one* year. Thus the College is taking advantage of the golden opportunity to make available to its extension course students material that is entirely abreast of the completely revised curriculum offered to resident students in 1957-58. Never before has a writing load of such magnitude been attempted at the College. To accomplish it within existing personnel ceilings, many changes and far-reaching improvements over past practices have been developed and implemented.

The College reviews all work completed by each extension course student to ensure that his education is progressive and nonrepetitious. In addition, students are awarded appropriate credit for all work previously completed, as they are phased into the latest instruction available.

Besides the chief advantage of professional betterment, participation by Reserve and National Guard officers in the USA CGSC extension course program offers them an opportunity to meet certain promotion requirements and to qualify for important unit assignments. An opportunity to earn retirement points also is offered. For those who live in isolated communities or whose occupational commitments do not permit regular attendance at Reserve or National Guard unit assemblies or USAR schools, extension work is a convenient way of keeping abreast of the latest military doctrine—by enrollment either in the complete program or in specific subcourses.

Officers of all components of the Army find this last-mentioned opportunity particularly advantageous. Officers anticipating attendance at a resident course at Fort

Leavenworth find extension work invaluable for self-preparation. Toward this end the College has a "Leavenworth Prep Course" composed of selected subcourses. The self-paced character and the flexibility of the correspondence method of education make it particularly well suited to the needs of busy people. Many educators argue that self-taught knowledge is retained longer than that acquired by other instructional methods.

Progress in Staff Training

In May of this year, as has been the practice for a number of years, the College conducted brief refresher courses for the commanders and staffs of National Guard and Reserve Divisions and Logistical Commands.

Major steps forward in these annual courses just completed were the increased emphasis on technical and tactical atomic subjects (largely classified) and coverage of the new division organizations. Closely allied with and supplementing these annual opportunities for a resident "refresher" is the College nonresident counterpart, commonly referred to as "The Special Catalog Program."

In supporting the staff training program of National Guard Divisions, Reserve Divisions, and Logistical Commands, the College publishes annually a Special Catalog which lists appropriate instructional material available. These organizations order a year's supply of material from the catalog, and the Deparment of Nonresident Instruction ships this material complete with lesson plans and training aids.

During the past fiscal year, 85 Reserve component units ordered a total of 29,747 copies of resident units of instruction. This material will be used by an estimated 3,400 students. The types of units placing orders at the College are shown graphically in Figure 3.

This summer, to ensure that the Reserve component units are furnished the most up-to-date material available, the College supplemented the Special Catalog with a gratuitous issue of selected units of instruction on the new ROCID and ROCAD divisions. This action was undertaken because these subjects were developed and written after the units in the field had submitted their requisitions.

The Special Catalog Program is kept responsive to the "customers'" needs by steps such as the one just mentioned, and by annual conferences of organization representatives conducted by the Department of Nonresident Instruction during the period when the unit staffs are at Fort Leavenworth for their refresher courses.

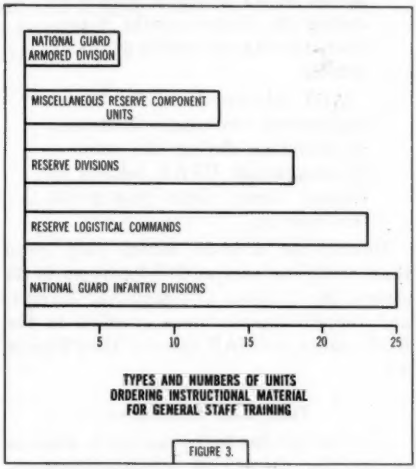

FIGURE 3.

USAR Schools Important

The US Army Reserve school system, administered by Zone of Interior Army commanders, provides a comprehensive, progressive course of instruction for all Reserve component officers. The highest level of instruction offered is the five-year Associate Command and General Staff course. Since 1955 the USAR school CGS course has been completely integrated with the College extension course program—that is to say, each period of training in

the USAR school classroom is backed up by an appropriate extension subcourse. This feature lends great flexibility to the program. The nonresident student, regardless of geographical location, can complete his academic work by either method or a combination of both.

The training year for all USAR school students consists of 120 hours divided as follows:

RDT (Reserve Duty Training) period of 48 hours is conducted during the winter months in two-hour training assemblies at USAR schools.

ADT (Active Duty for Training) period, two weeks (72 hours) is conducted during the summer by designated USAR schools at various Army posts throughout the country.

During the 1956-57 school year more than 5,000 students at 218 locations in 46 states, the District of Columbia, Hawaii, and the Philippines were enrolled in the CGS course in USAR schools. (See Figure 4.)

Time Lag Eliminated

The College has taken energetic steps to ensure that the USAR school student obtains the latest material available. In the 1957-58 USAR school program, resident type material completely up-to-date with that currently being used in resident instruction will be used throughout both Reserve duty training and active duty for training in the entire program.

In past years, extension subcourses had been used as the teaching vehicle in Reserve duty training. Since subcourses require a longer production time, they were almost one year old before they could be used in USAR schools. By using only resident type material, this potential one-year lag has been eliminated. In the process some very tight writing and shipping deadlines had to be established and met. However, these will be eased by resorting to shipment of material to the USAR schools in smaller and more numerous increments than have been used in the past.

Liaison Program

To help identify and resolve our mutual problems officers of the Department of Nonresident Instruction annually visit selected USAR schools in each ZI Army area. Representatives from the appropriate ZI Army, military district headquarters usually accompany such College representatives. Close coordination and cooperation by Army staffs, USAR school faculties, and the College have produced a steady improvement in standards of instruction during the last several years.

During the past fiscal year, the College, with US CONARC approval, instituted a policy of bringing selected USAR school officers to Fort Leavenworth for short tours of active duty with Department of Nonresident Instruction. These officers occupy key positions on the faculties of the USAR schools. Their opinions and comments and the mutual exchange of information between them and College agencies contributed much toward improving the support furnished by the College to the USAR school program.

Another important feature of College liaison with Reserve components of the Army is the close contact established annually with commanders and staffs of the units while they are at Fort Leavenworth for annual refresher training.

In addition, the College includes in its guest speaker program key officials of the Department of the Army and US CONARC who hold positions of great responsibility in the Reserve components program. For example, during the past academic year the College was privileged to have the Honorable Hugh M. Milton, II, Assistant Secretary of the Army (Manpower and Reserve Forces) and Lieutenant General Ridgely Gaither, Deputy Commanding General for Reserve Forces, US CONARC, as

graduation speakers for the two resident Associate classes. General Williston B. Palmer, Vice Chief of Staff of the Army, and Major General Donald B. MacGowan, Chief of the Army Division, National Guard Bureau, addressed the assembled commanders and staffs of the National Guard Divisions during their spring refresher course. Another highlight of the year's guest speaker program was an address by Major General Phillip D. Ginder, Assistant Chief of Staff for Reserve Components, Department of the Army, to the resident classes on the salient features of Reserve components programs and policies.

To round out its liaison effort, the College this year established the practice of having the nonresident department conduct special briefings for all officers (both students and faculty members) leaving the College for Reserve component assignments.

Although the nonresident programs for the 1957-58 academic year will reduce the time lag of nonresident material behind resident instruction to near-zero, the problem of attaining and maintaining the near-zero time lag during this period of rapid change is a formidable one. It cannot be a one-shot affair; once reached, the up-to-dateness of nonresident material must be maintained. College planning is based on recognition of this continuing problem.

One of the criteria necessary to make an annual revision of extension courses possible is that each officer produce at a faster rate than in the past. At the same time, improvement in quality is a constant goal. The extension course student must be provided with self-study courses that

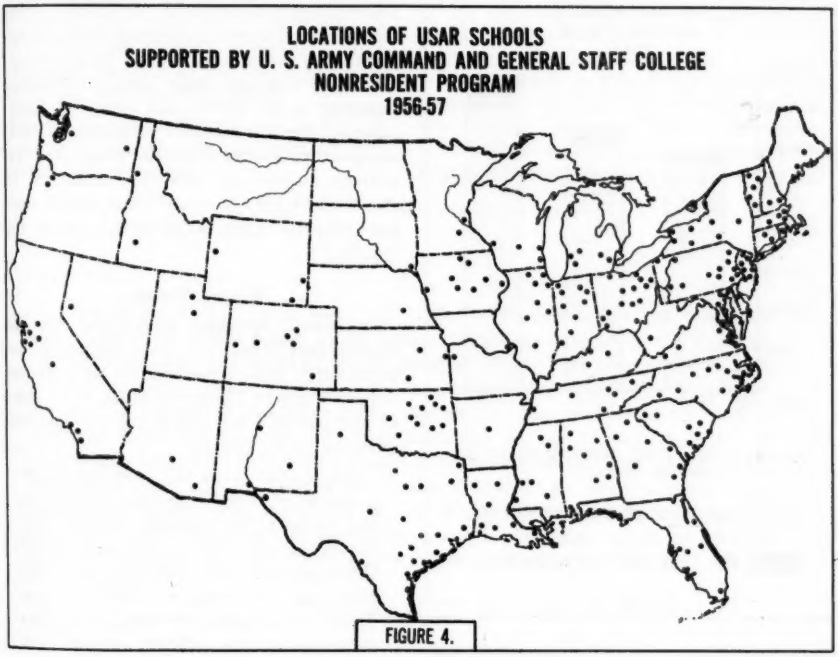

FIGURE 4.

are the ultimate in clear, meaningful writing. Consequently, the College has placed a premium on writing ability in its selection of officers for the nonresident department.

Another problem area is the handling of the huge administrative volume. (See Figure 5.) For example, during the last two

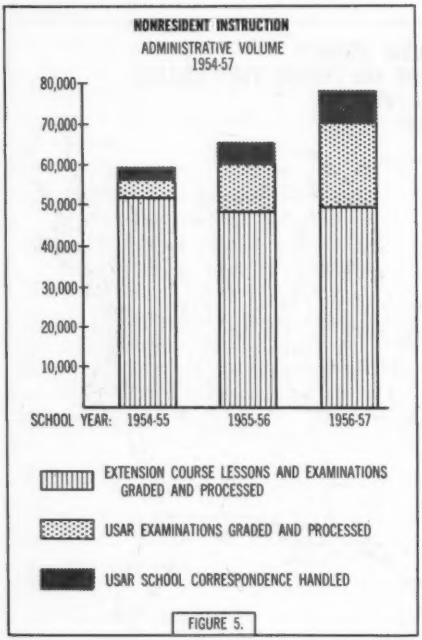

FIGURE 5.

years the number of extension course lessons and examinations and USAR examinations graded and processed increased 32 percent. At the same time the volume of USAR school correspondence handled increased in a comparable manner. The number of personnel concerned with these activities, on the other hand, remained constant.

Still another problem area is the use of classified material. Army regulations do not allow extension courses to use material classified higher than CONFIDENTIAL—MODIFIED HANDLING AUTHORIZED. Since practically all classified instruction at the College is SECRET or higher, relatively little classified material has been included thus far in nonresident instruction. The broad subject of atomic weapons is the one which is affected most. Although classification will be a continuing problem unclassified instruction does provide the nonresident student with all of the necessary principles and techniques that are applicable to the employment of atomic weapons. The College does supply classified material to ZI Army and overseas headquarters for the conduct of annual special weapons refresher courses. Plans are underway to include this type material in the 1957-58 USAR school CGS course during selected periods of active duty for training.

Future Trends

Improved, dynamic instruction for the nonresident student is our goal and new procedures and techniques to achieve our objective are on the horizon. Here are some of the possibilities which the College will examine in the future:

Coincident with the installation of a closed-circuit television system at the College for resident classes, TV kinescopes or video tape recordings of the more important resident presentations may be furnished USAR schools. Thus the audience for outstanding instructors or for difficult subjects can be broadened even further than that of the closed-circuit resident audience. This evolutionary step is still in its formative stages.

A library of recorded (tape and long-playing records) discussions and lectures on specific subjects may be established for individual nonresident students—primarily extension course students. Such a technique may not be too expensive and although recordings will not replace the printed word, they

may be easier to maintain current than is printed material.

Summary

Advancement and *progress* describe the College's activities in the nonresident instructional field during school year 1956-57.

The writing of a completely new 30 subcourse program (to be finished by the summer of 1958) already is underway. It will parallel the resident Associate Course and annual revision of the entire program will follow in succeeding years.

During the next academic year all USAR schools will use only 1957-58 resident type instructional material.

In addition, many minor and supplementary actions helped make the past year a most noteworthy one in the College's 66-year history in nonresident instruction. Continued emphasis and advancement in this field is essential in order to provide the 11,000 off-campus students with the best possible progressive instruction. The College is making every effort to ensure that its 1957-58 nonresident program will be the most current and advanced in its history.

The necessity to strengthen our Reserve forces has never been more vital than it is now, within this era where 'time-compression' prevails.—General Maxwell D. Taylor, Chief of Staff, *United States Army.*

One of the Army's most important tasks is to prepare for the enormous expansion of its forces which would become necessary at once in the event of war. The idea that we would be able to build an effective wartime combat Army with untrained civilians brought into the service after hostilities began belongs to an age which no longer exists. Technology has leveled the barriers of time and space which in the past have protected us from the consequences of unpreparedness. Throughout the length and breadth of the land, the Army is helping to train and fully equip our National Guard and Army Reserve. The increasing number and excellence of our Ready Reserve units constitute a priceless asset. From this reservoir of strength the Army would be able to draw immediately to build up its active forces in the event of war.

Secretary of the Army Wilber M. Brucker

ATOMICS--A CHALLENGE TO COMMANDERS

Colonel William E. Roberts, *Infantry*
Faculty, U. S. Army Command and General Staff College

ARE commanders and staff officers professionally qualified to function on an atomic battlefield?

In the day of atomic weapons this is the fundamental question and its answer has tremendous significance. Today, there is a demand for a wider understanding of the problems incident to the tactical employment of atomic weapons. To add impetus to the attainment of professional knowledge concerning the tactical employment of atomic weapons, the following excerpt from proceedings of a planning group of a hypothetical Exercise *Sure Fire* is published. The Chief of Staff is speaking:

Chief: "Gentlemen, our mission is to recommend the measures we must prescribe to ensure that commanders and staff officers are adequately prepared to cope with the atomic aspects of this exercise. Let's assume that time will be available to accomplish the things we conclude to be desirable. First, we want to consider personnel requirements with particular reference to professional competence in atomic warfare."

Colonel Black: "Chief, you know some of us feel the Army has gone overboard on this atomic emphasis. I think we ought to request reconsideration of that part of the directive which requires training under conditions of atomic warfare. As nations approach atomic parity there is more likelihood of a nonactive atomic war than an active atomic one. The nonactive atomic war is the type we should practice in this exercise, especially since we haven't tried out the new divisional organization in the field under such conditions."

Chief: "Black, I respect your opinion but let's look at the facts. The international situation requires that the Army be prepared to fight either an active atomic war or a nonactive atomic war or both. The recently initiated reorganization of Pentomic divisions stems from that requirement. We in the Army must prepare to fight under active atomic conditions because our organic weapons systems are designed primarily for such an eventuality. We have no experience factors for such wars as we have for wars using conventional weapons and it's high time we began to get such experience. We won't fight the problem. The directive says 'active atomic' and that's the way we'll play it."

Colonel Black: "All right, Chief, I'll buy that. Then our first problem is to determine the number of atomic weapons staff officers needed. They're the trained specialists commanders depend on for atomic decisions."

Colonel Sharpe: "Chief, I don't believe Black meant that the way it sounded. No good commander will *willingly* or knowingly forfeit command—that is, decision making—to a subordinate, even if he is a specialist. When the commander has the authority to fire atomic weapons he and

It is the individual responsibility of all officers, and especially commanders, to prepare themselves properly through schooling and self-study to be ready professionally for the challenge of atomic warfare

he alone must make the decision to do so. On the other hand, I must admit our future commanders are entitled to an education concerning these new weapons systems to enable them to fulfill their responsibilities. Particularly those who are apt to lean too heavily on the specialist, or issue orders without fully understanding all the implications, must be educated concerning these new weapons so they can discharge their duties properly.

"The commander of the future will be more important and will have graver responsibilities. The magnitude of effects of atomic firepower are awesome and decisive indeed. Atomic fires present such a powerful means of influencing the course of battle that commanders will want to make decisions themselves only after considerable thought.

"The future commander's responsibilities with regard to atomic weapons employment include providing his staff with adequate command guidance, making a sound evaluation of a target analysis, ensuring the integration of his combat forces and his firepower (both atomic and nonatomic), making the decision to fire, and effectively supervising the execution following the decision.

"Adequate command guidance usually includes damage desired, troop safety aspects, and other requirements. The commander must indicate the extent of damage that needs to be inflicted on the target to ensure success of his scheme of maneuver and he must specify the maximum risk to which he is willing to subject his troops.

"Also he must be familiar with the procedures used to apply his guidance to the analysis of specific targets. This is not something complex or really technical. Actually, much of a target analysis is possible by means of simple visual methods with a map. Of course, more complex mathematical methods may be employed at some of the higher headquarters.

"A basic decision which a commander must make early in a tactical situation is whether to use atomic firepower alone, maneuver alone, or a combination of both with one or the other in a primary role. It is clear then that the commander in an atomic situation has a role which requires him to prepare himself by acquiring a knowledge of characteristics, capabilities, and limitations of available weapons and delivery means; an understanding of possible effects, and an appreciation of the essentials of a simple target analysis. The *commanders* must be our first concern."

Colonel Black: "You just convinced me our problem is more concerned with commanders."

Chief: "Now you are on the right track, but let me clear up the matter of specialists just so we all understand the situation. Certainly, the relative lack of necessary understanding that has been prevalent until fairly recently, coupled with the inherent complexities of various weapons systems, have created more need now for staff officers specially trained in atomic weapons employment than there will be in the future. With further technological advances, which will tend to simplify present complexities and success in the current program of better and wider dissemination of information, it appears that at some future date the need for the specialist should cease. This seems to be the underlying basis for the program of training

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Colonel William E. Roberts was graduated from the University of Maryland in 1931. During World War II and the Korean occupation he served with the 6th Infantry Division. He also is a graduate of the Advanced Course of The Infantry School, 1947; the Armed Forces Staff College, 1949; and the Army War College, 1952. His service since the war includes duty on the faculty of The Infantry School; G3 Section, Headquarters Seventh Army; and commanding officer, 169th Infantry and 39th Infantry (Germany 1954-55). He was assigned to the faculty of the USA CGSC in 1955.

present and future commanders while continuing to train specialists.

"Meanwhile, the current CONARC program which directs the assignment of atomic weapons staff officers to division, corps, and army headquarters still is valid. Those specialists who have completed successfully either the five-week Special Weapons Course at Leavenworth or Sandia, or the atomic phase of the Artillery Officers' Advanced Course at Fort Sill are qualified for specialist duty at any headquarters. The G1 can spot these individuals quickly because they will have a prefix 5 on their MOS.

Some 1957 graduates of several of the branch schools as well as some 1957 graduates of the Regular and Associate Courses at the U. S. Army Command and General Staff College will have a limited specialist qualification for duty at divisions and corps. We've got to remember this difference in recommending utilization of these officers and make sure that our target analysts have attended the current Special Weapons Refresher Course which ensures that they maintain their specialist proficiency. You recall that we requisitioned enough trained officers in January to provide us flexibility for rotation of assignments without tapping subordinate echelons for command post and field training exercises. That didn't go over very big last year!

"In summary, then, we are fortunate in having these atomic weapons staff officers now, but don't anyone forget that they only assist the commander. They do not *supplant* the commander in any respect! These atomic weapons staff officers are trained in the necessary details of the effects of nuclear weapons; the characteristics, capabilities, and limitation of delivery systems, and the procedures essential for the tactical employment of such weapons. Their training permits them also to analyze the vulnerability of friendly disposition to enemy atomic attack. The technical training of these officers is limited to that considered essential for a general staff officer with additional duty as atomic weapons advisor.

"Our responsibility is to see that our commanders are given sufficient education to enable them to supervise these advisors properly. If our commanders are untrained in this respect then we will have failed. Let's get on with that job and let the future determine when we no longer need these specialists."

Colonel Black: "Thanks, Chief, it's nice to know I was not entirley wrong but just overlapping the time frame of reference."

Colonel Sharpe: "Chief, this appears to be a training problem primarily. Is anybody doing anything to unwrap the facts and disseminate the information we need? Or must we become involved in running another school?"

Chief: "I am glad to say that higher headquarters all the way up to the Pentagon recognized the problem and already have taken action to train our future commanders in atomics. White, give us the essence of the information you picked up recently."

Colonel White: "Perhaps the most significant and certainly the most recently initiated effort to train future commanders in atomics is a two-week resident course for senior commanders and staff officers conducted by USA CGSC. This course, which was directed by the Commanding General, United States Continental Army Command (CONARC), presents essential facts designed to provide senior commanders an understanding of the tactical application of atomic weapons in the Pentomic Army. The benefits to the Army will be at least twofold—first, this course will provide a much needed indoctrination and, second, it will inculcate an understanding of the implications of atomics in such a manner as to enable these officers to perform in the field effectively, to contribute improved solutions to some problems,

and to suggest possible solutions to unresolved problems. The study of unresolved problems by a group of officers representing some of the best thinking and the ultimate in experience in the Army today may pay large dividends in terms of development of doctrine and techniques. This refresher course is recommended most highly by those who have taken it. Chief, we should have our unit commanders and senior staff officers complete this course prior to the exercise.

"Many commanders and staff officers recently attended the presentation by the USA CGSC Model Corps Exercise Team. We got the very latest concepts of tactical doctrine for atomic weapon employment. Each command was directed to brief those not attending on the substance of the presentation."

Chief: "Thanks, White. Gentlemen, you see that the Army is educating its officer corps and concentrating on the development of atomic doctrine and techniques which will help us think about future problems in proper perspective without adverse attraction from the magnetism of the past. This type of knowledge and mental conditioning will benefit everyone. Remember, one of the objectives of *Sure Fire* is to require reasoning and to employ realism so as to bring about understanding."

Colonel Sharpe: "How about the John Doe who isn't going to get to such a course for some time?"

Colonel White: "Those who for one reason or another are unable to avail themselves of school training and who wish to be prepared for the future must rely on individual self-study and unit schools.

"Incidentally, such study will save an officer quite a bit of time when he does get to a service school. Generally speaking, texts on effects of atomic weapons are available. Department of the Army Pamphlet 39-1, *Atomic Weapons Employment*, gives an insight into effects and target analysis. New training texts related to the Pentomic organizations have been published.

"However, an excellent source for the essentials stripped of extraneous matter is the CGSC Extension Program outlined in Department of the Army Pamphlet 350-60, *Announcement of Army Extension Courses.* Many aspiring officers already are studying subcourse 12 which is entitled "Technical Considerations in Employment of Atomic Weapons." Another related course bearing on the tactical application of atomic weapons in a division is subcourse 15, "Support and Cooperation for Combat Operations." These and other extension course material will be superseded during the year by subcourses which will include complete, up-to-date doctrine on atomics and the Pentomic divisions. Recently I had a letter from a friend of mine in the Department of Nonresident Instruction at Leavenworth. He says the growing realization of the officer's own responsibility to learn more about the tactical application of atomics is reflected in a 300 percent increase in the monthly

enrollment rate in extension subcourses within the last several months. Most of the increase is in the new atomic subcourses."

Chief: "Gentlemen, the tactical employment of atomic weapons is a matter which deserves the most serious command consideration. Every officer who wants to prepare himself properly for the future must recognize that he is responsible for ensuring either that he can participate in the Army school program or for embarking on a self-study program which will give him at least the minimum knowledge he will need to meet the challenge of atomic warfare.

"We will continue the discussion after a break."

We have ample room for improvement. To me the most striking need is that for the education of individual officers.

Without widespread familiarity with the basic material and effects, we can never hope to secure adequate solutions to these problems.

Brigadier General A. W. Oberbeck, *United States Army*
Director of Special Weapons Developments
US Continental Army Command
Speaking at the Second Annual Army Training Conference on Atomic Warfare, United States Army Command and General Staff College, Fort Leavenworth, Kansas, 24 June 1957

Progress is measured not only in physical standards, but in mental norms as well. The modern Army is an increasingly complex organization in terms of its equipment and its operational procedures. I have often had occasion to say that it has a place for men of all skills and of all attainments. We need the artisan, the repairman, the scientist, the combat leader, the scholar, yes, even the genius will find a task appropriate to his capacity. Our Army school system is one of the largest educational systems in the world today. We train promising young men in the hundreds of skills required in the Army, many of which are common to the requirements of civilian society as well.

General Maxwell D. Taylor

NAME, RANK, AND SERVICE NUMBER

Colonel Carl E. Williamson, *JAGC*
Headquarters, United States Continental Army Command

AMERICANS generally were shocked about what happened to our prisoners of war in Korea. What sinister thing brought about the most extensive collaboration with the enemy known since the Civil War? Neither interrogation nor indoctrination of prisoners of war is new. These practices are as old as the history of warfare. What did the Chinese Communists do that was different? What is being done to correct our deficiencies?

By the time of the Chinese intervention in Korea, American servicemen there had become familiar with North Korean barbarity toward prisoners of war. They knew about captured American soldiers having their hands tied behind their backs with telephone wire and then being murdered in cold blood. Many of our troops were young; some were fresh from the relative softness of occupation duty in Japan. The suddenness of the conflict caught commanders without opportunity to indoctrinate their troops on the important subject of "why we fight." Few, if any, of the captives had thought of the possibility of capture prior to the instant it occurred. General William Dean stated, "Frankly, I have never considered the possibility of becoming a prisoner of war."

First Kindness Surprises

Communist indoctrination began with capture. With a warm handshake the Chinese commander of the unit making the capture greeted the confused prisoner struggling with his fears. "He told us that we didn't have to worry for they were our friends, and that the war was not to be blamed on us as we were duped to come to fight for Wall Street's profits at the risk of our own lives." The prisoner was given cigarettes; interrogation was brief and innocuous. The prisoner was given about the same fare as the Chinese soldier. Food and medical attention were bad for captor and captive alike.

This treatment upon capture completely bewildered the shaken prisoner apprehending torture or death. Thus began an exploitation by the Chinese Communists of the uncertainty and confusion of the prisoner and of his fear of the unknown which would persist throughout his captivity. Thereafter haunting him would be hints of torture, physical mistreatment, poor food, dummy firing squads, and threats of permanent nonrepatriation.

The Gentle Beginning

The next phase began at the prisoner of war camps. After segregation of officers, noncommissioned officers, and privates, study groups were organized. Initially, the average prisoner looked forward to these discussion groups as relief from boredom and as an opportunity to exercise the American proclivity for sociability.

The first lectures by the Communists pertained to the Chinese "lenient policy" toward prisoners of war and to such subjects as camp sanitation. Then followed

We must teach the soldier why he fights, to avoid capture; to escape, if possible; what to expect at the hands of an enemy; and, if captured, to adhere strictly to the "name, rank, and service number" principle

compulsory instruction on various subjects, all presented with disarming plausibility. The captors avowed they entertained no desire to convert the prisoners to communism, but only desired to have them understand the nature of capitalism and "how it causes wars." Also they appealed to American sportsmanship, pointing out that if the prisoners believed in fair play, they must hear the Communist side of the argument, regardless of predilection or how they believed afterward. The instruction embraced a dozen subjects, prominent among which were "The Big Ruling Rich Families in the United States," "Profits of Wall Street and Big Business," and "Illegality of Truman Sending Troops to Korea."

The burden of the instruction was to distinguish between "imperialistic America" and the "peace-loving Communists." There was concentration upon the "maldistribution of wealth in America," "racial and class discrimination," and "America's imperialistic designs in starting the Korean war and threatening the borders of peace-loving (Red) China." The Communists presented themselves as being interested in "the people" and in "peace," a subject the captor well knew to be close to the heart of every soldier and particularly dear to one in an enemy prison camp longing for the day of his repatriation.

Colonel Carl E. Williamson attended the University of Missouri where he received his LL.B. degree. He is a graduate of the Armed Forces Staff College (1953) and the Army War College (1956). During World War II he was Staff Judge Advocate with the 35th Infantry Division in Europe. From 1945 to 1955 he served in SJA offices of Second Army; Far East Command and United Nations Command; and in the Office of Executive, Office, The Judge Advocate General of the Army. Since 1956 he has been Staff Judge Advocate of Army troops in England, and now is under service orders for assignment as Judge Advocate, Headquarters, US Continental Army Command.

Explained Communism

For the first time the prisoners of war were hearing an explanation of communism—one which showed it to be good and democracy to be bad. Few knew anything of Communist doctrine or of Communist methods, although the Reds did find that knowledge was a strong defense against their efforts to indoctrinate prisoners who had been factory workers, traditional Communist targets. One of these stated, "We'd heard all that guff before. Back home. We knew their line."

To their further dismay the prisoners discovered their Red captors knew more about American history and American institutions than did the prisoners. There was little question, therefore, about the results of arguments between the two sides on political and ideological subjects.

Concurrently with the group indoctrination program, the Communists directed their attention to interrogation and indoctrination of individuals. Throughout their procedures the Communists capitalized on the avid desire of prisoners to communicate with people at home, either by writing or by "voice signing" radio broadcasts. The Red persistence is described aptly by General Dean who points out that if the prisoner refused to make a statement in writing, the Reds would demand a statement in writing as to why the prisoner did not want to make a statement in writing!

Used Writing as Wedge

A favorite technique was to have the prisoner write out what he remembered of a military manual, or to prepare a biographical sketch. In the one case the prisoner, shown a copy of the manual, could perceive no harm in the exercise of writing about what the Reds already knew; nor were apparent difficulties connected with a simple biographical sketch. At any rate compliance offered a means of escaping harassment.

But the captors demanded that the papers be rewritten and then rewritten again. It was nearly always possible for the Communist to demonstrate from the biographical sketches that the prisoner, or someone in his family, was "an enemy of the people." Invariably the copies of the various papers differed in detail and the unfortunate prisoner found himself a "war criminal" convicted of lying. Different officers recording their recollections of the same manual naturally would vary both in substance included and in their treatment of the same information. That was the signal for charges of "liar" and "war criminal" all over again.

The Reds, of course, understood it is seldom possible to prepare a training or doctrinal manual, or any other publication, which will cover every contingency which might arise in actual practice. They knew also the human tendency for a man to remember what he actually does longer and more clearly than what he reads or is taught. These experiences, and particularly the deviations from the book, were of considerable intelligence interest to the Reds.

Confession Was a Weapon

Confessions also were demanded, and obtained. Prisoners confessed to trivial misdeeds in an effort to avoid annoyance only to find the "war criminal" tag attached to them. Furthermore, they had to implicate friends in their offenses if they were to satisfy the interrogator. Misdeeds were recorded—both those the prisoner revealed in his own "confessions" and those his fellow prisoners described and about which he could never be sure he knew. Hence constantly haunting the prisoner was his dread of the day when the list of his malefactions would reach the number which dictated his exile and nonrepatriation.

Meanwhile, sundry group techniques, designed to undermine the spirit of all the prisoners, were being employed. Those who were leaders by virtue of rank were segregated early in captivity. When natural leaders emerged they were transferred away quietly and supplanted by spies and informers of the Reds' choosing, care being taken to avoid raising group antagonism. The Chinese always were meticulous in avoiding or immediately abandoning any action which tended to engender or solidify group feeling. In furtherance of the design to destroy organization spirit the Communists directed that military titles be dropped and prisoners be known only by last names.

The Communists even tried to cast doubt upon the prisoner of war status of the men they held. Claiming the Americans were aggressors and illegal interventionists in a civil war started by South Korea, the Communists said all the prisoners were, in fact, "war criminals." Such mail as arrived was censored and the prisoner was given immediately only those family letters complaining of such things as high prices at home.

Gave up on Reactionaries

At the same time, the positive side of group indoctrination was proceeding apace. As the study groups progressed, the Chinese classified the prisoners in three categories: A—"peace-loving" collaborators, B—"great middle-of-the-roaders," and C—"reactionaries." Those persisting in their resistance to the combined interrogation-indoctrination attempts of the Communists were sent to reactionary camps. There they were given the same miserable treatment as all the others, but at least they had to contend with no further indoctrination efforts. None were killed, brainwashed, sent into "exile," or drugged. They simply were sent to a labor camp and put to work. It is significant that these so-called "reactionaries" returned from the rigors of their prison experience in as good condition, if not better than their contemporaries.

The collaborator was given special attention, but his was a route of no return. At any sign of wavering the Chinese would require the collaborator to report for additional instruction, and extra demands were made for proof of his "sincerity." Some of the more trustworthy progressives were made leaders of the other prisoners.

Appeals were made to the ego. One prisoner stated that the Chinese appeared to be very much interested in him, and marked him "as a likely prospect for further indoctrination to use as an example to the rest of the men." Later he was told that he was "the only prisoner who had the qualifications to be a member of the Communist Party . . . that I was a potential revolutionist. . . . They even said that I was a 'Young Lenin' which in their eyes is the highest tribute they can pay to a young man."

Great Propaganda Profit

We cannot measure the full effect of the Communist exploitation of prisoners of war in Korea, especially in the propaganda field. While they were prisoners of war many of our men were prepared to believe the United States engaged in germ warfare and was the aggressor in Korea. With statements to that effect indorsed by American prisoners in propaganda broadcasts, in some areas of the world millions of people may have believed these claims.

As to the prisoners themselves the effects achieved by the Communists do not present a pretty picture. No man could trust any other. Many prisoners were willing to collaborate with the captors, to become informers, and to undertake to influence other prisoners to disregard their duty, all in an effort to escape the curse of nonrepatriation. The Communist pressures were great. The greatest and most effective were the label of "war criminal" and the threat of nonrepatriation. Prisoners frightfully recalled the fate of thousands of German and Japanese prisoners then remaining, and still remaining, in the hands of the Communists long after the humane and proper time for their return to their native lands.

In addition to making speeches and broadcasts, writing articles for Communist newspapers, appearing in motion pictures, leading indoctrination groups of other prisoners, and spreading false propaganda as, for example, the "confessions" of germ warfare, some prisoners wrote letters to editors in the United States urging that a stop be put to use of germ warfare by United States forces. Others participated with the enemy in planning subversive organizations of secret agents in the United States to serve as contacts between ex-prisoners of war and communistic groups.

Divided and Leaderless

For lack of leadership—due principally to the method of segregating leaders, but in some degree to officers' failure to assume leadership when possible—the situation in the camps degenerated into one of every man for himself. There was no discipline. Prisoners refused to take care of their sick. As may be expected in such a state of affairs, bullies took over and oppressed whom they could. Some men lost the will to live. Organization spirit was nonexistent. The Communists had seen to that by destroying identity of the individual as a member of any unit except a prisoner of war camp, and even his identity by military grade. With informers, Chinese and American, in every group a general feeling of distrust and isolation prevailed. There was no sanitation. Prisoners struggled with each other for food. The total effect was deplorable. Lives were lost as a result of the misery which the prisoners collectively brought upon themselves.

Further effects of the Communist in-

doctrination were clear upon the return of the prisoners of war to United States lines. Discernible was some tolerance of communism. Some thought the Communists had done a good job in Korea and that communism would work in Asia. Others stated that the Communists had treated the prisoners about as well as they could. Speech interlarded with Communist clichés was prevalent. Absent was the commonly expressed hatred of the prisoners returning from German and Japanese prison camps after World War II.

The results of Communist efforts to destroy identity with units were still apparent, for prisoners gave as their organization the number of their prison camp instead of the military unit to which they belonged at capture, and they continued to identify themselves as prisoners or former prisoners of war. Nearly all the returnees believed that germ warfare had been used in the Korean conflict. Some believed that South Korea had been the aggressor.

Remedies Suggested

When the impact of the nature and extent of the behavior of the prisoners of war in the hands of the Communist enemy was appreciated, there arose among the services, and elsewhere, a number of suggestions for solution of the problem. There were those who believed that the time had come to compromise the Army's age-old "name, rank, and serial number" doctrine [1] if the captor was disposed to force further information. Others expounded a proposal to permit prisoners to talk freely about everything except classified information.

An interesting solution was proposed by a retired service officer who suggested that servicemen be instructed that if captured by the Communist, they would be free to say or do anything the captors wanted: to write statements, broadcast, appear in motion pictures—in short, to comply with any demands in this field. First, however, the President of the United States would inform the United Nations Organization, and publish generally throughout the world, the reason such a course was necessary, pointing out that anything said by an American prisoner of war was a fairy story given in order to avoid torture and brainwashing. The proponent predicted that such action would make the Reds look ridiculous on this side of the Iron Curtain and would tend to stabilize the position of the wavering neutrals in the United Nations. Moreover, he reasoned, statements obtained by duress, torture, and brainwashing were not necessary behind the Iron Curtain. In that area the Reds could cut any story out of the whole cloth and the people would have no choice but to believe what they were told.

There are several inherent difficulties in this proposal. In the first place, the problem is not with torture and brainwashing. The Reds accomplished their purposes through the use of the "war criminal" tag and the accompanying nonrepatriation threat which they were able to impose upon the unfortunate prisoner who unsuspectingly gave writings, statements, and confessions.

Lying Is No Solution

Moreover, lying is always a poor refuge, and the Communists are quite adept at revealing deception. The prisoner who depended upon lying as his defense would find that he required an exceptionally reliable memory; otherwise he would discover himself inviting the very thing he had sought to avoid—mistreatment. Besides, it may be assumed that the lie detector is known to the Communists.

Furthermore, those people behind the Iron Curtain to whom would be addressed the notice that American servicemen would

[1] Hereafter referred to as "name, rank, and service number."

tell fairy stories if captured are the least likely people in the world to receive such information. And even if they did receive it, the Reds could readily discount such a tailored-in-advance explanation.

Similarly, the proposal to give more information than "name, rank, and service number" if the captor appears disposed to force more information, and the proposal to give unclassified information freely appear inadequate. One proposal affords too obvious an excuse to talk too much and the other would encourage any tendency to downgrade or declassify information rapidly to gain relief from pressure.

While these various proposals were being examined, the Army adhered to its traditional "name, rank, and service number" rule, taking the position that the soldier was required to die on the battlefield if need be and captivity justified no change in his duty. Captivity was to be regarded as an extension of the battlefield.

The Code of Conduct

The Secretary of Defense appointed an Advisory Committee in May 1955 to advise him concerning the conduct of prisoners of war. When the committee reported its findings it recommended a Code of Conduct to guide servicemen, and suggested training in this important subject. The President incorporated the code in an Executive order directing training of all servicemen. Subsequently, the Department of the Army published the code and in support thereof set up a training program designed to correct those weaknesses revealed in Korea.

While no magical powers are claimed for the Code of Conduct it does perform the essential mission of establishing policy for all the services. No divergence is permissible. The code sets forth the principles which are to guide the soldier in his role as a fighting man. He is to be ready to give his life, if necessary, in defense of his country and its way of life, and he will never surrender of his own free will but will resist capture as an individual and as a member of a unit. If captured he will continue to resist and will make every effort to escape. He is to keep faith with his fellow prisoners; accept no special favors from his captors; assume leadership, if indicated; and follow the orders of his superiors. He is required to give only name, rank, service number, and date of birth, and to evade answering further questions. He is to understand that those dependent upon him will be taken care of in the event of his capture.

Not Service Job Alone

In addition to service training in the previously slighted subject of capture, the committee suggested another step, laudable, but probably unattainable. It recommended *that the service find an effective means of coordinating with civilian educational institutions, churches, and other patriotic organizations to provide better understanding of American ideals.*

The Army must take the recruit as it finds him and mold him into a soldier. It is extremely difficult to make up for lack of preservice training, education, and character building. It is expecting too much of the services to assume the obligations of civilian institutions or to venture far into their domain. The American public would not stand for it and the Army cannot do it. Some hope is offered in movements such as "Militant Liberty" which would, through schools, churches, and veterans' and civic organizations, increase interest in training of youth in Americanism and the basic freedoms.

The services are restricted in another field. We cannot by torture train a man to withstand torture. We can only inculcate the soldier with his obligation to defend his country after capture as well as before. He can be taught what to expect at

the hands of his Communist captors and thus be forearmed for resistance.

The Department of the Army training objective is to increase *unit fighting efficiency and individual will to resist. It will in no way assume the approach of merely training soldiers on how to behave as prisoners of war.* In addition, the soldier is to be assured that even as a prisoner of war he will not be forgotten, that all national means will be employed to establish contact with him, to support him, and to gain his release.

The Program Is Sound

The Army training program is well drawn, thorough, and well conceived. It is a splendid piece of work and, if intelligently executed, will bring about gratifying results. As in any program designed to cover millions of individuals, there are areas subject to minor exceptions. However, between the planner and the trainer the program is so flexible that imagination and initiative may be used throughout.

Training needs to be hard, simple, and realistic. In order to create a lasting impression, it ought to be presented by demonstration and actual troop participation. We conduct maneuvers to provide practical exercises in tactics, movement, and how to live on the battlefield. Training of the same character is in order in this subject, and the Army appropriately makes provision therefor.

It is easy to imagine a Patton instructing in this area. He probably would begin: "Here is what those so-and-so's over there in the quilted suits are going to do to you if they get hold of you." Then he would proceed with the old tried and true method of *telling* them in clear terms, then *showing* them, and finally, he would give them a taste of the discomfort and harassment prisoners of war are likely to face, something on the order of the practice of allowing the soldier a whiff of diluted chemicals in the gas tent. Such training would be impressive and effective and need not be cruel or inhuman. Certainly the public should be informed of what is going on and how the training makes sense.

Small War Bigger Problem

Another important consideration which should not be overlooked has to do with the peculiar circumstances attending a limited war. The prisoner of war goes into the enemy prison camp armed only with strength of character and power of will. Otherwise, he is helpless. In this extremity it is one thing to feel confident that his country sooner or later will win the war and that eventually the time will come when he can turn the tables on his captors. It is quite another thing to expect the war to be fought to a draw in which case he will find he must depend upon the highly questionable mercy of his captor to see that he is repatriated.

The limited war requires stronger motivations than ever. Little wars bring partial mobilization. The soldier may curse his fate in being selected and thrown into the conflict when a preponderant number of his friends, neighbors, and acquaintances remain at home with their families, on their jobs, earning more money than ever, and improving their positions in civilian life while he is a long way from home, subjected to the hazards of combat, and fighting a war which he may not understand. While these same considerations may enter into the thinking of the soldier drafted during an all-out war there is a considerable difference in degree due to the personnel requirements of a big war when so many more individuals find themselves in the same boat.

These particular considerations applying to limited war dictate more strongly than ever that the soldier be imbued with the principles for which he fights and that he know the implications of the "war criminal" label which will be a powerful weapon in the hands of his captors.

The conclusion of such a war might not assure him of recovery by victory as in the case of general war, and if he has been convicted as a "war criminal" his repatriation most certainly would be in doubt. These factors render it all the more significant that the soldier avoid entrapment through confessions and writings as was the case in Korea.

Shun All Compromises

The lesson of Korea urges against explorations into methods and techniques of thwarting enemy interrogation and exploitation, or of the use of ruses and stratagems to evade and avoid disclosure of military information. There should be no deviation from the "name, rank, and service number" principle. Any encouragement to compromise weakens the principle which for many years has been proved sound.

The matter is too serious for experiments in acting clever. The old saying about one man's meat being another man's poison hardly could be more applicable than in this business of evading captor interrogation. What better common denominator can be found than the "name, rank, and service number" doctrine? There are numerous examples of evasive stratagems which worked and clever individuals will employ old ones successfully and devise new ones in future wars. But the average American soldier is a poor actor and a worse liar. Of transcendent importance, therefore, is the doctrinal principal to be adhered to by all which will be of general benefit to all. It would be unsound to base a service policy upon the capabilities of the exceptional person adept in deceit.

Prisoner communication lay at the seat of the trouble in Korea. Therefore, in training it will be important to stress the point that the soldier taken prisoner is to give his name, rank, service number, and date of birth—this much and nothing more. And he must be told *why* he should limit this information. If the soldier knows that his chances of survival are as good, and probably better, if he adheres to this slightly modified "name, rank, and service number" doctrine it will make sense to him. The experiences of the "reactionaries" in the Chinese prison camps during the Korean conflict should be convincing.

The traditional Army principle avoids the doubtful necessity of training individuals to attempt the impossible task of winning ideological arguments with the Communist captor, or any other captor. The theories of the Communist conspiracy are abstruse, devious, dense, and vary so far between principle and practice that they are impossible to understand.

An objective of training should be to instill in the soldier the conviction that his country and its way of life, his Army leaders, and outfit are the best in the world, all contentions to the contrary notwithstanding. If patriotism already is ingrained, so much the better. Let the soldier be convinced of the strength of his cause and stick to "name, rank, and service number."

If the soldier knows why he fights; if he is inculcated with the soldier's duty to fight, avoid capture, and escape if possible; if he is imbued with the sense of continuing responsibility toward his fellow soldiers, knowing the advantages of adherence to duty and the penalties of failure; and if he is informed of what to expect at the hands of the enemy if captured; the results will be gratifying. We can anticipate fewer soldiers being taken prisoner, greater resistance to capture, and less enemy propaganda bearing the color of truth by virtue of indorsement by Americans. These results may be expected to obtain regardless of who the enemy is or what his methods may be, and what is of greatest importance, the quality of the American soldier as a fighting man will improve.

MAKE YOUR OWN ADVANTAGE

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TODAY, the weight of military thinking centers on the atomic battlefield of future wars. Throughout current training literature and in almost every article or speech concerning the atomic battlefield great stress is placed upon mobility. It is generally recognized that the army of the future must enjoy great mobility in order to fight on the atomic battlefield and to survive the blows delivered by enemy atomic weapons. There can be little or no argument about the requirement for victorious armies of the future to possess mobility superior to that possessed by their enemies. However, *what is mobility? How is it used?* And, more important, *how do you gain a mobility differential over your enemy?*

Much emphasis is being placed on the development of new surface vehicles of all types, new fuels, and new types of aircraft in an effort to provide our future Army with a mobility differential over that of the armies of our enemies. Certainly this effort, time, and money is well spent. While it is not intended to imply that we should diminish this effort, it is imperative to recognize that superior equipment alone is *not* the answer to our mobility requirement.

It is only logical to assume that our Communist opponents have the scientific and technological capability and the industrial capacity to match us in this field. Thus we can only expect our research and development programs to keep us abreast of our potential enemies; we must not expect or rely upon them to give us the decisive advantage required.

Perhaps a brief review of military history will show how, in the past, a mobility superiority has been achieved and how it has been used. Genghis Khan provides a well-known example of decisively effective use of mobility. In the Khan's 13th century sweep across Russia and Central Europe up to the very gates of Vienna itself, his lightly armed Mongol hordes crushed all that stood in their way. Habitually, the Mongol generals succeeded in massing or concentrating the firepower of their crossbows at the decisive place and time, with an intensity which overwhelmed their enemies. Similarly, they had the ability to disperse rapidly and avoid superior concentrations of their enemies.

Contrary to the practices of the Russians and the Central and Western European forces opposing them, the Mongols cut their impedimenta to the minimum, lived off the country, traveled light, and retained the capability for rapid movements over great distances. They were little delayed by a logistical tail, and they exploited their superior mobility to the maximum. The Mongols appeared to recognize that the superior firepower and mass provided by the heavier armament and equipment of the European armies was of little avail against them so long as they retained the offensive and their complete freedom of maneuver. On the other hand, the European forces were wont to assume the defensive, letting their enemy come to

Mobility is not necessarily the result of superior weaponry and transportation so much as planning, organization, training, and conditioning to exploit a mobility potential available equally to opposing forces

them. In so doing they gave the initiative to an enemy who outmaneuvered the European forces, generally selecting the time and place of battle to his own best advantage.

Equipment Not the Key

In analyzing the opposing forces it is apparent that neither side possessed any vastly superior item of equipment—the fact of the matter appears to be that the Mongol forces, *by superior organization and training*, were able to achieve a mobility far in excess of that possessed by the European forces.

Perhaps one lesson to be learned from this example is that mobility is not necessarily dependent upon gadgetry or superior equipment; rather, it may be achieved by the superior use of capabilities available to both sides, *but capitalized upon only by one side.*

Field Marshal Count Alfred von Schlieffen, being very cognizant of problems imposed on Germany by a possible two-front war with France and Russia, became an ardent exponent of what he called the "battle of extermination." As his guide he took Hannibal's tactics at Cannae, where Hannibal, with approximately 50,000 men and with the sea at his rear, annihilated the Roman force of some 79,000 men by effectively employing a double envelopment. As Von Schlieffen points out, this maneuver was effective in spite of the theories inveighing against the use of the double envelopment by numerically inferior forces. Clausewitz said: "Concentric action against the enemy behooves not the weaker," and Napoleon wrote: "The weaker must not turn both wings simultaneously."

Experience has shown that, in general, Clausewitz and Napoleon both were right in cautioning against attempting the double envelopment with inferior forces. Why then was Hannibal so successful at Cannae? His army killed over 48,000 and took approximately 3,000 prisoners, while suffering only about 6,000 casualties. Truly, this was a battle of extermination, as it was labeled by Von Schlieffen. Success cannot be attributed to the Carthaginian forces being better seasoned and trained, since of Hannibal's 32,000 shock troops of "heavily armed men" only 12,000 were Carthaginian and 20,000 were Iberians and Gauls, lacking in both equipment and training. The terrain did not particularly favor Hannibal; rather, he was in a poor position with his back to the sea. Neither side enjoyed any particular advantage in weaponry.

An answer appears to lie in the superior mobility of the Carthaginian army. Here it is interesting to note how Hannibal achieved that superiority. In minor part only was it in the organization or equipment of the Carthaginian forces. A comparison of the two armies reveals that the Roman force consisted of 73 percent heavily armed men, 19 percent lightly armed men, and 8 percent horse cavalry. The Carthaginian army was 64 percent heavily armed men, 16 percent lightly armed, and over 20 percent cavalry. True, by organization Hannibal had a slightly more mobile organization than did his foes, but not sufficiently so by itself to permit a double envelopment of such numerically superior forces. In fact, Hannibal's success in surrounding a force which was better than 52 percent larger than his own can be attributed only to his *use* of mobility.

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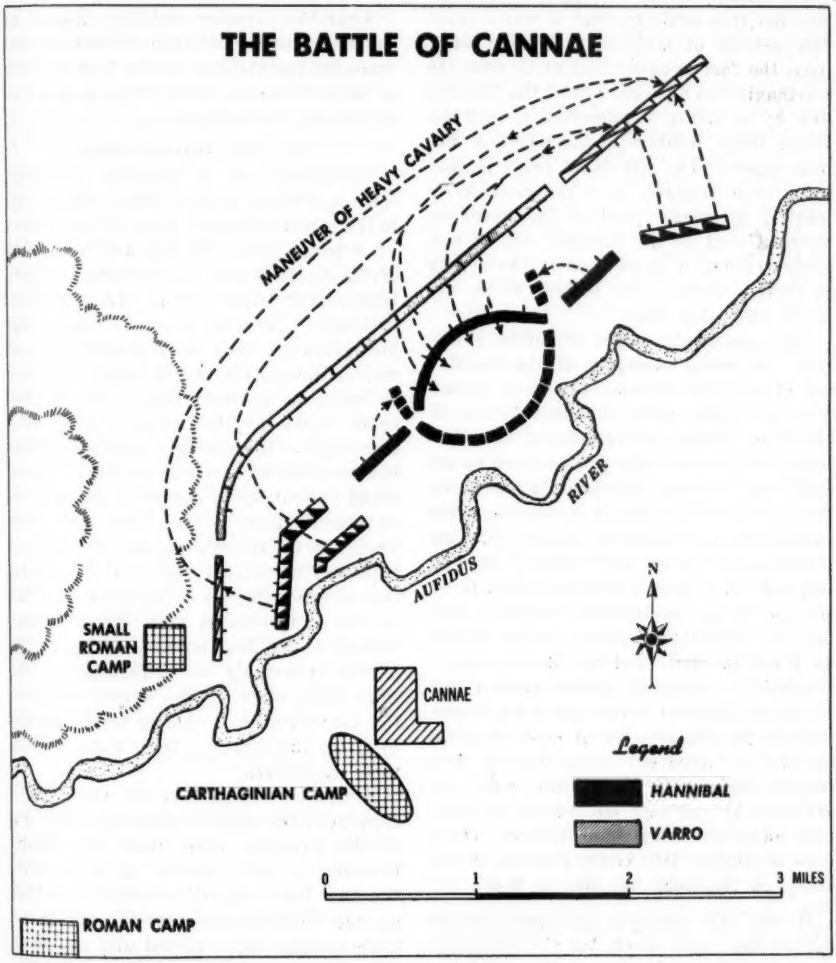
Rather than meeting the enemy head-on in a solid block designed to absorb the shock of enemy attack, recoil, and drive home the decisive attack, Hannibal planned and executed a mousetrap play. He deliberately weakened the point where the Roman frontal attack would strike, permitting his center to be driven back; however, he placed his well-trained 12,000 heavily armed Carthaginian troops in two wings so that as the center gave ground his wings would be on the flanks. Hannibal's strong cavalry force overcame the weaker Roman cavalry on the left, swept on to help his right cavalry force rout Varro's stronger cavalry and then turned in time to close



the trap on the Roman rear before the weakened center was broken. Annihilation resulted.

Mobility Is Relative

Of course it can be argued that this was not true mobility, that it was a superior *scheme* of maneuver. Be that as it may, the fact remains that at Cannae the Carthaginians *outmaneuvered* the Romans and by so doing a numerically very inferior force annihilated the superior Roman legions. The important point is that mobility is relative. It is not necessarily marked by great speed of movement as demonstrated by the Mongols' use of mobility; rather, *it is marked by the ability to bring superior force to bear at the decisive place and time.*

Throughout the pages of military history are many examples of the decisive use of mobility to overcome enemy forces. Von Schlieffen points out that Frederick the Great repeatedly capitalized on a mobility differential over his enemies to attack and defeat numerically superior forces. Almost habitually Frederick relied upon outmaneuvering the enemy, turning his flanks or flank, and striking deep in the rear. His basic concept appears to be the use of the envelopment, single or double, to annihilate superior forces—much as Hannibal destroyed the Roman army. Frederick's repeated success against numerically superior forces must be attributed to his effective use of mobility since he had no apparent advantage in firepower. Again, this mobility was not achieved by any new equipment or superior gadgetry. Lieutenant Colonel Theodore A. Dodge, US Army, Retired, in his study on Napoleon has this to say:

In the 18th century, European armies did not maneuver much, but the battalions drilled by the old Dessauer *(Frederick the Great) were able to do so to a much greater extent than any others . . . the Prussian Army could ploy and deploy with considerable rapidity and was wont to take the offensive, and owing to the immobility of other armies, it could execute flank marches in the presence of the enemy which might not otherwise have succeeded.*

Thus the superior mobility enjoyed by the armies of Frederick the Great resulted from his capitalizing on the foot mobility of better trained, better drilled, and better disciplined soldiers.

Prussia's Battle Groups

Frederick's use of mobility introduces some additional considerations of interest to the modern student. Even when opposed by superior forces he did not hesitate to divide his own army into relatively small, independent battle groups. These groups, generally operating beyond mutual support distance, used their mobility to maneuver around the enemy flanks and rear in order to position themselves so they could strike at the decisive point. The maneuver of these widely separated forces was coordinated carefully so that all forces acted concentrically against a common objective. Further, it should be noted that Frederick the Great's schemes of maneuver appeared to concentrate on the annihilation of enemy forces rather than upon the seizure of terrain as such. While he used terrain to the best advantage, his efforts almost invariably were focused on the total destruction of the enemy army by the convergence of mobile battle groups to strike the opposing force entrapped by their maneuvers.

Maneuver regulations of the French Revolutionary armies prescribed the use of the Prussian type linear formation; however, it soon became apparent that the raw levies of citizen-soldiers making up the Revolutionary armies of France were inadequately trained and drilled to be able to handle these rather inflexible formations in battle. The Revolutionary armies gradually evolved more suitable formations for their citizen-soldiers. In general, they adopted the American con-

cept of a line of skirmishers to precede their main battle formations. These main formations were made up of a line of deep columns.

Napoleon capitalized on these new concepts and maximized the flexibility and maneuverability permitted by these formations. Like Frederick the Great, Napoleon recognized the tremendous advantages to be gained by capitalizing on the mobility of the foot soldier. His campaign in September and October 1805, terminating in the surrender of Mack's Austrian forces (Baron Karl Mack von Leiberich) at the city of Ulm on 19 October, provides an excellent example of his masterly use of mobility to gain decisive results with minimum fighting. In a little over a month he marched his armies from the English Channel, across the Rhine, into the Danube Valley; surrounded the Austrian forces under Mack, separating them from their Russian allies who were advancing more slowly from the east; and forced Mack's capitulation, without engaging in any really major battles. This again is an example of the effectiveness to be gained by the vigorous exploitation of a superiority in mobility; and again it was a case of achieving this enhanced mobility by capitalizing on improved *organization* and superior *training* and *conditioning* to exploit a mobility potential that was equally available to both forces.

What Are the Lessons?

Are there any lessons to be learned which can be applied to the atomic battlefield? Do these experiences of Genghis Khan, Hannibal, Frederick the Great, and Napoleon provide any lessons which can be applied to the atomic battlefield?

The decisive effect of the proper *use* of mobility obviously has significant value. However, more to our point, the manner and the means by which these commanders achieved their superiority in mobility is of more interest. Do these methods offer anything of value to us in preparing for atomic war? It appears that one method by which Genghis Khan achieved tremendous superiority in mobility was by his virtual independence of a logistical tail. Because on the atomic battlefield we cannot hope to live off the country as did the Mongol hordes, there is little doubt that we must concentrate on reducing the immobility imposed by dependence upon an inflexible, unwieldy line of communications. Of equal or greater significance was Genghis Khan's use of a more flexible organization and the advantage given him by superior training in the mobility available to him. In short, *superior organization* combined with *superior training*, gave his force greater mobility than that of the opposing armies.

What can we learn from Hannibal's tactics at Cannae? As pointed out previously, it was not so much a matter of Hannibal's forces enjoying superior mobility over the enemy as it was Hannibal's use of the enemy's mobility to his own advantage—call it the judo approach. Hannibal drew the enemy forces into a compressed pocket where they became massed to the point of ineffectiveness and he was able to destroy them. Confronted by an enemy who may possess a mobility advantage, could not a similar mousetrap tactic be adopted? Cannot the enemy be induced to affect a penetration and in the process thereof become compressed into a relatively restricted area which then could be used as an atomic killing-ground by our own forces? It is emphasized that it will be of the utmost importance to hold the shoulders of this penetration so troops will be in position to exploit the effects of defensive atomic fires by attacking and annihilating the enemy forces thus trapped.

Concentrate on Enemy

In a concept of operations on the atomic battlefield of the future, visualizing the use of widely separated, highly mobile,

independent battle groups, it might well be that like Frederick the Great we should orient the application of combat power on the total destruction of enemy troops, rather than on the seizure of critical terrain as such. Further, we should recognize that the maneuver of these independent battle groups should be so planned as to effect a convergence of force on a common objective, such as an enemy troop concentration, at the decisive time in such a way as to lead to the *total destruction* of that force. It may be that the mobility of our battle groups will be no greater than that of the opposing forces, but success will result from exploiting that mobility better.

To emphasize the lesson, both Frederick and Napoleon took a capability available to their opponents—the mobility of the foot soldier—and by superior drill, conditioning, and training gave their armies a mobility differential over their opponents. *Even in this day of guided missiles and atomic power, so long as battle involves conflict between opposing forces on the ground, the mobility of the well-trained and disciplined foot soldier may provide the mobility differential that determines the ultimate victor.*

Mental Mobility Pays Off

Finally, it is worthwhile to emphasize what is perhaps the most important lesson: *Genghis Khan, Hannibal, Frederick the Great, and Napoleon each achieved superior mobility, or superior use of mobility, over his opponents by the application of means and capabilities enjoyed in common with those enemies.* That is to say, none of them developed improved means of transportation, but all of them *capitalized on the capabilities they had*, exploiting their mobility in a *decisive* fashion by concentrating their mass at the critical point and at the decisive time. In general, they achieved their success by exploiting the superior mobility they acquired through *improved organization*, *better training*, and *better discipline*. In large part, the mobility differential those great leaders used to such advantage was mental more than physical.

In summary, the following points appear to stand out:

1. Mobility, when vigorously exploited to permit decisive maneuver, has long been a major factor in the successful conduct of battle. As Lieutenant General C. D. Eddleman, Deputy Chief of Staff for Military Operations, stated in a report quoted by the February 1957 issue of the *Army Information Digest*: "It is this mobility differential over the enemy, coupled with the ability to mass firepower, that can ensure victory in battle."

2. Repeatedly in the past a mobility differential has been achieved, not by means of new equipment, but rather by superior use of capabilities common to both sides but overlooked or neglected by one.

3. Areas which in the past, when properly exploited, have resulted in an advantageous mobility differential have been organization, training, and discipline.

4. We must recognize the fact that the scientist can give us at best a temporary advantage in the field of mobility over our enemy. However, the commander *who makes the most of what he has, who develops a disciplined unit conditioned to withstand long periods of exertion, and who best trains his units to capitalize on their inherent mobility will have the means for achieving victory on either the atomic battlefield or the nonatomic battlefield.*

KMAG

Training Ground for United States Officers

Colonel Mabry G. Miller, *General Staff*
Chief, Supply Division, G4 Section, Headquarters Third Army

MUCH has been written and said about the contributions of the United States Military Advisory Group to the Republic of Korea (KMAG) and justly so. The officers assigned to this advisory group are dedicated to the advancement and improvement of the ROK Army, and have been most successful. Their military abilities are respected, and their counsel is sought on decisions, large and small.

But little has been written or said about the other face of the coin—the contribution KMAG and the ROK Army make toward the training and career advancement of the United States officer assigned as a KMAG advisor. Too much acceptance has been given to the attitude that the KMAG tour is a 16-month "Undesirable Tour of Duty" which a certain unlucky percentage of our officers must undergo. The adverse publicity given to duty in Korea during the conflict and the natural desire of officers to serve with United States units has placed KMAG duty low on the assignment preference lists of most US commissioned personnel.

Recent graduates and former instructors of US military colleges are quick to detect and point out the educational advantages available to the officer who serves with KMAG.

The graduate of the U. S. Army Command and General Staff College is impressed with the fact that he not only can put the "goose eggs" on his map, but actually can go to that spot on the ground and see the disposition of the troops, And, what is even better, he finds at the troop unit a commander who is an ardent student of US field manuals and who is seeking advice as to how he can improve his troop dispositions, his plans, and the operations of his unit.

The graduate of a US service school usually will find many of his classmates in the officer corps of the Republic of Korea Army units he visits. He will find them alert, forward looking, and capable. They are quick to show him how US doctrine and principles are being applied in small-unit training and tactics, and are most receptive to constructive criticism and advice. Here, the advisor has a wonderful opportunity to broaden his experience and to observe in practice the lessons he has learned in his prior schooling. He can assist in the development of effective training techniques and sound operational plans, and can observe the application of tactical doctrine at levels of his own choosing.

The United States advisor who is interested in operational or logistical planning has at his fingertips operational plans (and supporting logistical plans) from a level comparable to army group down to and including the battalion. What is even more advantageous, he can travel to observation posts, command posts, fortifications, and logistical installations and actually observe the ground and see the steps being taken to implement these plans. Further, by light aircraft he can observe the area from coast to coast, thus making the plans much more realistic.

The student of logistics has unlimited

opportunities afforded to him while on KMAG duty. Regardless of the level of his interest he can see the logistical operation in progress. He can observe the movement of supplies into the ports of Inchon and Pusan. He can follow the supplies from the end of a ship's winch into the base depots. From there he can observe distribution through intermediate and forward supply facilities until the items are in the hands of the using unit. The opportunity to observe and help is particularly great because the ROK Army is quite young in the logistical game. Less than two years ago the ROK Army assumed responsibility for its own logistical support from the Korea Communications Zone. Since then great strides have been made, but much still remains to be done to facilitate and improve logistical operations.

The receptive attitude of ROK personnel toward their logistical advisors is challenging and encouraging. The advisor observes and actively participates in the progress which is being made daily and thereby is given an opportunity to broaden his experience in almost any area of his choosing.

In effect, service in KMAG easily can be considered a postgraduate course for almost any US military school or college. Here, the advisor observes on the ground and actually participates in the training, planning, operations, and logistical support of a field army. Here, spread out on the terrain before him, is a full field army with its combat and logistical support. His terrain board now becomes actual terrain. His goose eggs and other map symbols become actual living troop units and installations.

It must be admitted there are certain disadvantages to service in Korea. The absence of families naturally creates a loneliness that nothing can dispel, but use of available recreational facilities and an active interest in one's assignment fill this gap to some extent. Korean service lacks many of the comforts of home. Improvements being made constantly, however, are providing acceptable (and better) living standards for all KMAG advisors.

KMAG service is a challenge to the career-conscious officer. A comparatively new army with young, impressionable, and receptive leaders presents an advisory opportunity never before encountered by the US Army. The native initiative and ingenuity of the ROK leaders is inclining many advisors and visitors toward the opinion: "Never has so much been done with so little."

If the average US officer who receives his orders to Korea is dismayed, it is due to misinformation or a lack of information. Rather, he should recognize the opportunities open to him, the challenge that he faces, and the fact that this tour can be the most beneficial of any to his own military education and career advancement.

Colonel Mabry G. Miller was graduated from Clemson College, South Carolina, in 1933, and entered on active duty in 1940. He served in North Africa and Sicily with the G4 Section, Third Army Headquarters, from 1942 to 1944. He was assigned as an instructor at The Infantry School during 1944-47; was with the 351st Infantry, Trieste, Italy, from October 1948 to December 1951; served on the staff and faculty of the U. S. Army Command and General Staff College, 1952-55; was advisor to the Chief of Staff and G4, First ROK Army, Korea; and served as G4, Eighth Army Support Command from June 1956 to January of this year. A graduate of the USA CGSC in 1948 and of the Armed Forces Staff College in 1952, he is now Chief, Supply Division, G4 Section, Headquarters Third Army.

KMAG ACTIVITIES COVER SPAN OF MILITARY TRAINING

Have the Confidence to Confide

Captain Gordon J. Lippman, *Infantry*
8th United States Infantry Division

IT ALWAYS is profitable to analyze the actions of military leaders to determine which strengths led to success and which weaknesses to failure on the field of battle. Such an analysis never is more interesting than when it permits comparison of officers with opposite qualities who exploited or who stumbled over the same principle of leadership.

One of the most fascinating such comparisons can be drawn in a study of a man who did almost everything wrong and a leader who did almost everything right with the surprising result that they both fell victim to the same error. The best illustration of their opposite qualities and personal characteristics is provided by a look at the example each set for his subordinates.

General George Armstrong Custer was his own worst enemy. Throughout his short, stormy career as an officer in the United States Army many of his contemporaries made a great effort to like him, but few succeeded. It is doubtful whether any individual would strive intentionally toward a goal of antagonizing all of his associates, but, intentionally or not, Custer certainly succeeded in provoking the hostility of his comrades.

In any study of this military career, however brief, the reader is made painfully aware of the shortcomings which caused this colorful boy wonder to be so ill thought of by so many people. In short, he constantly violated every principle of leadership (as we know them today) and possessed only a few of the common leadership traits. While the leadership code of the mid-1800's may have been somewhat at variance with modern teachings, there is evidence that the principles, expressed or implied, have been practiced by successful military men for centuries.

There is further evidence that the knowledge of these principles was possessed by other officers of the period, but little of it seems to have rubbed off on Custer in study or in practice.

His greatest violation of the leadership principles was his failure to provide an example for his subordinates to follow, although it was not his failure in this respect which finally brought about his undoing.

An Insubordinate Student

During his four years at the Military Academy Custer seems to have established one of the all-time low records. Impartial academy records portrayed him as a slovenly soldier and a deplorable student throughout his cadet days. Fellow cadets recalled him as defiant and insubordinate, forever in trouble, and constantly on the verge of more.

Upon graduation he was thrust into the hysteria which characterized the first year of the Civil War. The little recognition received by Custer during that year was for deeds accomplished as an individual rather than as a leader. He had the good

History is replete with examples which prove that the proper application of the principles of leadership often is the secret of success, while lack of their proper use produces failure in one form or another

fortune to be observed in one such action by General George B. McClellan and was asked to join the latter's staff as a captain and aide. In return for countless small favors, Custer lavished unabashed devotion on his new chief and soon became a court favorite. A short time thereafter he was promoted directly from the grade of captain to brevet brigadier general—a promotion which, despite some popular belief, was not an error and for those times was not even extraordinary.

To this point Custer had maintained his unkempt appearance, troublesome attitude, and defiant nature and seemed to wander about quite as he pleased. Immediately following his selection for promotion a new character was born within him. He blossomed out in one of the most garish costumes yet seen on a battlefield and his heretofore impetuous manner developed into a ruthless attitude toward subordinate and enemy alike—an attitude which often bore the traces of outright cruelty.

Tried for His Cruelty

While Custer was able to master horses with skill and men with brute force, he was never the master of his own emotions. He was, at times, overcome with fits of anger which led him to commit military crimes of the most heinous nature. In such a fit of anger at Front Royal, Virginia, he ordered and witnessed the execution of six duly enlisted privates of the Confederate Army, all of whom were due the rights and treatment of prisoners of war.

Again in 1867, while on the frontier, he appointed himself judge and jury in the execution of a group of enlisted men who attempted to desert the ranks of his own unit. In this case when word of the defection reached him he preemptorily ordered the officer of the day and several other mounted officers to hunt the deserters and to "bring in none alive."

George Custer could run the gamut of emotion from intense anger to extreme compassion within the time it takes to draw a breath. Immediately following the execution of the deserters, he was overcome with worry for the welfare of his wife who resided at the time at Fort Riley, Kansas, some 200 miles from his place of duty. Without compunction he deserted his command, although his orders charged him with executing a scouting mission, and rode pell-mell for home. In so doing his escort of 75 men damaged a number of horses and was ambushed by Indians. Custer did not falter from his course to punish the ambuscade or to bury his own dead. When his defection was discovered, charges were prepared and he was tried subsequently by court-martial for desertion, ordering the execution of deserters, ruining Government horseflesh, and other allied charges. The court found him guilty and ordered his suspension from command for a period of one year.

Abandoned His Wounded

Upon return to duty with the Seventh Cavalry Regiment a year later, he led a punitive expedition against the Indians in the vicinity of Washita Basin. He overwhelmed the village of the Indian Chief Black Kettle who was then peacefully at rest in winter quarters and protected by treaty with the US Government. He trounced the Indians royally; then while in

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complete command of the field he took counsel of his fears and withdrew uncontested. In so doing he abandoned his regimental executive officer, regimental sergeant major, and 18 troopers who still were engaged, and later were massacred within hearing of the main body. This action brought him severe criticism from soldier and civilian and caused loss of respect for him within his own unit.

At every opportunity Custer chose to misinterpret or disobey orders always carrying out assigned tasks in the manner which best suited him. There were only a few senior officers who trusted him, and near the end of his career most of them had abandoned him. The only people within his unit who remained steadfast in their devotion to the commander were the members of the clique he established and maintained at his headquarters.

These things combined to align his subordinates against him, not in open defiance, but rather in lack of cooperation with him. Considering the example he set for them, he could expect little else.

Stonewall the Opposite

An almost complete contrast to Custer in the matter of leadership and personal character was General Thomas J. Jackson. Here was a soldier of the same period, subjected to the same teachings, who set such an example throughout his life—particularly during the Civil War—that he earned the profound respect of soldier and civilian, both in the North and the South.

Stonewall Jackson arose from humble surroundings and a broken home. He arrived at West Point in 1842 as a clumsy, awkward farm boy with little to say for himself except that he possessed a burning desire to acquire an education. Although he got off to a poor start he rose to the near top of his class by the time of graduation.

The Mexican War provided Jackson with a field of battle upon which to display his ability at a very early age. Lieutenant of artillery Jackson joined the Army of Winfield Scott as it prepared to storm the city of Veracruz. While he saw very little action in this battle, he later seemed to be in the middle of every battle and in each one he distinguished himself. At Chapultepec he stood by his lone surviving artillery piece, served by himself and only one sergeant, while the supported infantry fled in wild disorder. He refused to withdraw from his perilous position, even under order, and thereby provided a base for a fresh brigade to launch an assault and overcome the enemy. As a reward for noble service and for the example he set as a capable and fearless officer in this and other such actions Jackson was promoted to the grade of major by the war's end.

Great Concern for Others

Jackson acquired a taste for religion while in Mexico and pursued religious study diligently during the years following the war. Humility and a high regard for the rights and feelings of others became his two outstanding characteristics as a result of his study of religion.

At the outbreak of the Civil War, Jackson chose to serve the Confederate cause out of his love for the State of Virginia. When called, he took with him his quiet scholarly manner and deep religious convictions, both of which remained unflagging until his death. He gathered around him men who were respectable and generally capable, and built a staff which would serve his needs. He did not allow this group to become a clique then or later.

Wherever his troops marched and fought Jackson could be found. He ordered no man to undergo danger or suffer privation that he himself would not share. His stoic calm was to remain one of his greatest assets and gained for him a great deal of respect from his troops. Although the term was not used in those times he became what is known today as a "soldier's general."

Stonewall Jackson was the complete master of his emotions and rarely gave way to a fit of anger. When he did so, he confined his anger to the person most directly concerned, not allowing it to be felt by others.

Always With His Troops

The action which earned him the nickname of "Stonewall" was typical of his manner throughout the Civil War. At the First Battle of Bull Run in the year of 1861 his brigade was in reserve initially. The Union Army broke the Confederate line in the vicinity of Henry House and a panic of Southern forces ensued. In a matter of minutes the battle on that vital flank rolled up to Jackson's position while he waited with great patience.

He had foreseen this eventuality and had positioned his troops with great care. Prior to, and during, the onslaught he trooped his line, first cautioning his men to hold their fire, then directing the fire as the Federals closed with the position. Under his personal tutelage the inspired brigade repulsed the attack with great spirit although they were greatly outnumbered. During the heaviest of the fighting General Bernard E. Bee shouted to his South Carolinians, "Look, there stands Jackson like a stone wall. Rally behind the Virginians, men." Thus the Stonewall Jackson legend was shaped as he set the example for his own troops and the rest of the Confederate Army as well.

Rarely has there flourished a military leader who could, solely by his quiet presence, so influence the actions and feelings of his troops. Wherever he went his men were quick to cheer him and feel better in their hearts that he was near. His personal habits were never open to censure. He denied himself the habit of intoxicating liquor and, in fact, rarely took a drink, although he admitted he was very fond of liquor. No one remembers that Jackson ever indulged in vulgarity of any description nor did he indulge in luxury not available to all others of his command. To a greater degree than nearly any other leader in the Civil War, he led a spartan existence at all times. In all these ways did Stonewall Jackson create a desire in his followers to emulate their leader.

Trusted Only His Clique

Returning to Custer, as the support of his subordinates dwindled he became distrustful of all except his clique. His plans

General Custer

and orders became more abrupt and scant until his command scarcely knew what was expected of it. In the field, out of expedience or design, he developed a routine which amplified the ignorance of his junior officers. Orders notified the subordinates only of a time to move out and the order of march. As the column moved out, Custer assumed the leading position and the command simply followed wherever he might go. There is some speculation that he may never have prepared a plan for battle until the action opened at which time he would issue orders as required.

Such seemed to be the case on the day of Custer's death on 25 June 1876. The Seventh Cavalry Regiment rode up the valley of the Little Big Horn River to seek and punish Indians who had departed from their assigned reservations. His orders stated that he was to combine his attack from the south with that of General John Gibbon, from the north, on 26 June. Custer was warned early on 25 June by his capable advance guard that he was about to encounter an overwhelming number of hostiles on his line of march. He chose to disbelieve this information and failed to develop a plan for the ensuing battle within the adequate time remaining.

Although all signs pointed to immediate battle, Custer issued an order for Captain Frederick W. Benteen to take three troops and search for Indians at an oblique from the line of march. He did not inform the newly appointed wing commander of the precise distance he was to continue the search or the duration of the mission. The result of this inconclusive order was that the effective fighting strength of the regiment was dissipated by one-fourth at an hour when all available strength would be needed.

No Plans and No Support

A short while and a few miles later Custer concluded that his scouts had informed him correctly as to the location of his enemy and that battle could not be avoided. He sent orders to Major Marcus A. Reno, his second in command, to take three troops and launch a frontal assault on the Indian village several miles to the front. He also sent word that Reno could expect support from the remainder of the regiment. Two glaring deficiencies in his actions to this point were that he ordered no reconnaissance of the village to determine its size and he failed to discuss his plan of battle with his key leaders.

While there is mention of support, apparently there was no discussion of the form this support was to take. Reno executed his orders halfheartedly and his frontal assault soon bogged down. As he looked over his shoulder for the promised support he found that Custer and the remaining five troops had disappeared from sight. This so unnerved him that he contributed little or nothing to the remainder of the battle.

Historical facts indicate that Custer had gone in search of an assailable flank, which he failed to find. The slaughter which followed has become history which defiles the several thousand victorious Indians and eulogizes the several hundred soldiers of the Seventh Cavalry Regiment who were killed trying to do a job without adequate orders, supervision, or any hope of accomplishing their mission.

In the end Custer's own weaknesses were his undoing. Up to this time his lack of application of the principles of leadership had resulted in the death of countless soldiers required to obey his command. Now he was responsible for the death of his own worst enemy—himself.

Kept Plans to Himself

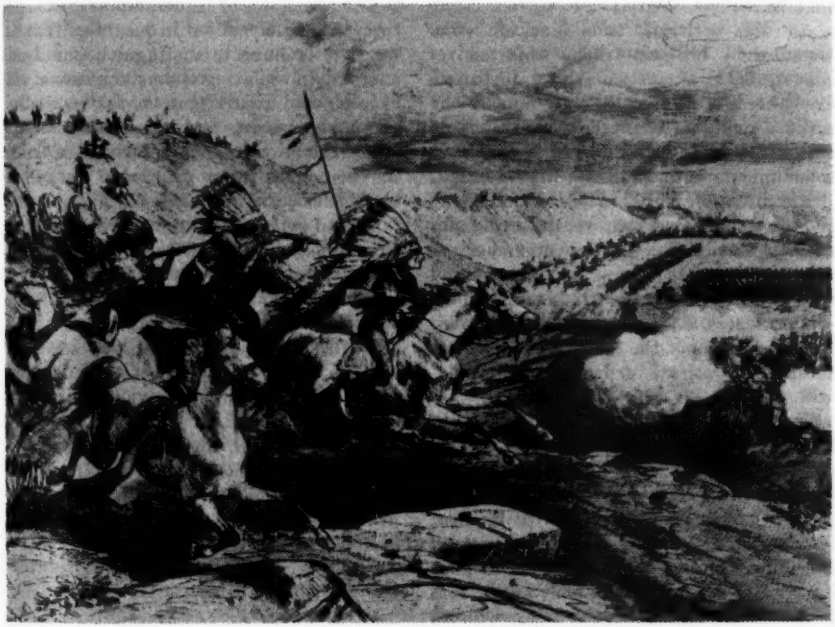
The chink in the armor of Stonewall Jackson was his refusal to communicate with his subordinates in the matter of plans and orders. This phobia had its birth during the time he was served by many incompetents as was so often the case in the early days of the Civil War. At the climax of a particular engagement Jackson issued his plan and orders for the action to follow. When his orders were not carried out as he expected he vowed that he would never again disclose any of his intentions to a subordinate. This consuming love for secrecy so engulfed him that even his staff scarcely could learn the time of day from him.

Jackson's plan for battle generally developed in a set fashion. He began by making a detailed personal or map reconnaissance followed by the issuance of a time to move and order of march. He then led the command—be it brigade, division, or

corps—to the location of the assault and personally disposed each major unit. As the battle opened he rode from unit to unit supervising the action and throwing in the reserves as needed, heedless of personal danger. Suffice it to say, he was the only person in the command who ever had access to any knowledge of consequence. In time his subordinates reluctantly accepted this unorthodox procedure and enjoyed some success under his constant direction.

There is evidence that Jackson could move his troops over great distances in this fashion. Under the cloak of complete secrecy he moved his corps from the Shenandoah Valley to the east of Richmond for the Battle of Seven Days. It was not until near the end of the 200-mile march that even his chief of staff learned the purpose of the move and the destination.

Jackson enjoyed no particular success in the battle which followed the march and one of the reasons seemed to be that the terrain would not allow him to deploy and direct the action of each subordinate unit personally. Still another reason appears to be that no one in the corps except Jackson knew the mission, hence there was no initiative exercised by the unit commanders when splendid opportunities for success presented themselves.



Leslie's Illustrated Weekly Newspaper
Harvard College Library

Crazy Horse's Sioux warriors charging General Crook's column at the Rosebud River, Montana, 17 June 1876

Corps Failed Without Him

Jackson's error in not ensuring that his subordinates understood the task and his plans is pointed up in the Battle of Chancellorsville in May 1863. Jackson chose a route of march which would outflank the

numerically superior force of Federal General Joseph Hooker. Preceded only by a few scouts Jackson personally led his corps over this route and achieved such surprise that the Union Army of the Potomac was routed. He deployed the units and through his sole supervision brought the battle to its climax, which offered to serve the North one of its most decisive defeats in that war.

At this critical time Jackson was wounded by his own troops while on reconnaissance, a particularly unfortunate event because he was the only man in the corps acquainted with the dispositions of all of the units, and he was not able to communicate with anyone.

His intention had been to cut the enemy retreat at Union Ford, yet he could not pass on that intention to any other person. He had designated no second in command and to make matters worse several of his senior officers, and logical successors, were wounded at about the same time. Needless to say the entire effort came to a standstill.

In the resulting chaos General J. E. B. Stuart rose to the occasion and assumed command of the leaderless corps without knowledge of the unit dispositions or a plan to exploit the success. He made a valiant attempt to continue the attack but the initiative was lost by a lack of knowledge of the task as well as the loss of Jackson. The Federals recovered but Jackson did not and the South lost one of its most successful generals whose love for secrecy died with him.

There are any number of case histories which tend to prove that the proper application of the principles of leadership most often is the secret of success while lack of proper application produces failure in one form or another. While a single leader seldom is able to achieve complete mastery of the principles in their entirety, almost without exception great leaders consciously or unconsciously practice a majority of the principles.

Principles Are Valid

The principles of leadership are, in some cases, so closely allied in meaning that at times it is hard to distinguish one from another. In violating the principles *set the example* and *ensure that the task is understood, supervised, and accomplished* General Custer also appears to have violated the principles *keep your men informed, know your men and look out for their welfare,* and *make sound and timely decisions.* Another study of the life of Custer might result in an entirely different set of violations, foremost of which might be *know yourself and seek self-improvement.*

While Stonewall Jackson was steadfast in the application of most of the principles of leadership it was his violation of the principle *ensure that the task is understood, supervised, and accomplished* that cost the South heavily at the Battle of Seven Days and later at Chancellorsville. Both times victory was within the grasp of General Lee and each time the loss of complete victory could be traced to Jackson who, like Custer, failed to *keep your men informed.*

Thus it is that one man was a great leader in almost every aspect of that art, yet the downfall he suffered because he could not or would not trust his subordinates was just as costly as that suffered by a man who violated almost every one of the sound principles of leadership.

KATUSA

Captain Martin Blumenson, *United States Army Reserve*

THE word KATUSA * is almost forgotten. About the most it produces today is a faint glimmer of recollection. Yet it wasn't long ago that KATUSA seemed like the answer to many soldiers' prayers. For a while it promised to solve what was probably the most pressing problem in Korea at the time—combat manpower. How the unusual, perhaps unique program worked is in itself interesting; why it failed is significant; together, these items add up to a lesson.

In studying the KATUSA lesson it must be emphasized that we are examining a specific, separate program and the draftees it produced—not the trained Republic of Korea (ROK) soldier or the ROK Army in general.

Many Obvious Advantages

KATUSA came into being not long after the start of the Korean conflict. The army of the Republic of Korea had been hit hard and faced a staggering task of reorganization while still under attack. The American units committed on the Korean peninsula had been maintained at low peacetime strengths and they suffered extremely large numbers of casualties in the early engagements. Some infantry companies quickly were reduced in size to 50 men; a company of 75 soldiers was not uncommon. Out of this situation emerged the KATUSA idea—augmenting US combat units by integrating Republic of Korea soldiers into American ranks.

The idea had many advantages. Since American replacements were not immediately available, Korean troops rapidly would build up the committed US units to near-authorized strengths. They would give American units troops familiar with the unusual terrain, climate, and language of that remote part of the world. They would, in a relatively short time, become familiar with and trained in US military methods and techniques. Also, reconstituting depleted American ranks with Koreans would make it possible to absorb into the armed forces for immediate use against the aggressor more Koreans than the Korean Army could handle at the moment.

The details were worked out by representatives of the Eighth US Army in Korea, the US Military Advisory Group to Korea, and the Republic of Korea Army who met in mid-August 1950 and formulated the KATUSA plan. It was no easy task. They had to decide how they might best procure, equip, train, transport, and integrate approximately 40,000 Korean soldiers quickly into the four American divisions then committed in Korea and a fifth still in Japan.

They decided to share the burden. The Republic of Korea would procure the troops by means of its own regular governmental machinery. The ROK Army, with the help of American supervisors, would train the new troops. The US Army would equip and transport them to the units which would integrate them. Pay-

* Korean Army Troops, US Army.

The KATUSA experiment—augmenting US combat units by integrating ROK soldiers—was adopted as an expediency in time of great crisis. An analysis of the results provides valuable lessons for the future

ment of troops, disciplinary control, and courts-martial jurdisdiction would remain a responsibility of the ROK Army. Special Korean teams were to be placed on duty with US units to administer KATUSA personnel, and a special section of the ROK Army Adjutant General's Department would handle KATUSA records.

The way it worked was simple. Each KATUSA soldier was processed through a ROK Army reception center where he received a uniform and a carbine or a rifle. (The initial American problem here was obtaining clothing—particularly shoes—in small sizes for Koreans.) Equipped, the KATUSA soldier then went to one of several training centers for 10 days, during which he learned to fire his weapon and was given basic instruction in such subjects as personal hygiene, field sanitation, and military discipline. The centers turned out a total of at least 500 trained Koreans each day for the US divisions. Thus every fourth day each of the four American divisions in Korea received 500 KATUSA troops. Additional troops in training were assembled for shipment to the fifth US division still in Japan. The plan looked so good that the decision was made to augment a sixth US division, also in Japan.

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To Bolster Company Units

The augmentation of US units was to take place at the infantry company and artillery battery level. Each company and battery was to receive no more than 100 Koreans. How they were to be integrated was left to the discretion of each US division commander. Yet he was not to use them as common laborers or cargo carriers. He was to provide them with the same gratuitous issue of quartermaster items that US soldiers received. He was to give them the same medical care in the combat area, but KATUSA soldiers requiring hospital treatment would be evacuated to ROK Army hospitals.

When KATUSA soldiers first appeared at US units, American officers and men welcomed them with open arms. They were glad to see fresh troops coming in. Unfortunately, initial optimism soon faded. The program did not work out as expected.

The first place where the system broke down was in the procurement of KATUSA troops. Because of the chaos in South Korea during the first few months of the conflict, recruiting was simply a matter of gathering people off the streets. One soldier showed up at his US unit carrying his briefcase containing business papers; he had been on his way to work when recruited. Another KATUSA soldier had been enlisted while he was on his way home from the pharmacy with medicine for his sick wife; he still had the pills in his pocket when he reported for duty.

Not only recruiting but processing the draftees posed difficulties which resulted in deficiencies. Because of a lack of Korean medical facilities, KATUSA soldiers were not immunized against disease. American medical officers, operating with shortages of supplies for Americans, naturally were concerned about the possible introduction of disease and the increased potentiality of epidemic disease.

Lacking classification machinery, the ROK Army had no way of knowing how many potential leaders, if any, were part

of any one increment sent to the training centers. Some groups of men had no individuals capable of being developed into good noncommissioned officers in the time available and under conditions then existing. How important this was soon became obvious from the repeated reiterations of American commanders on the need for Korean leaders.

Training a Major Problem

The training was the second place where the system broke down. Even before the training centers were established, each US division received an initial increment of 250 untrained Koreans. Some units were able to give these KATUSA troops two or three weeks of training; but others were forced to commit them to combat at once. The units able to train their Koreans before combat generally found that they soon were able to give a creditable performance. The units which had no time to train the new men naturally found them unfit—"they didn't so much as know how to load a rifle."

It should not have been surprising when the original 250 KATUSA troops received by the 2d Division and committed immediately with a battalion of the 9th Infantry were overrun during the night of 31 August 1950. The division reported "many desertions and stragglers," a report which must be judged against the further admission that "straggling was not confined to the ROK personnel." The second KATUSA increment to the 2d Division—500 soldiers who had received 84 hours of training before their arrival—"had excellent morale and have done good work as combat riflemen." "ROK personnel with this division are doing well," came the report. Yet two weeks later the division bleakly stated, without comment, that KATUSA troops had abandoned their positions during an enemy attack.

Experience elsewhere was similar. The 1st Cavalry Division reported the KATUSA's "susceptible to training," yet observed that when they were in a fire fight they expended ammunition "rapidly with little or no results." It was difficult to get them to move forward to make contact with the enemy. "This situation may improve with time and experience" was a hopeful note; but 10 days later the division reported that KATUSA troops had left their positions on several occasions, thereby "jeopardizing the . . . remaining American troops."

No matter how the US divisions integrated their KATUSA troops into the ranks, the deficiencies of procurement and of training were apparent. The 2d Division, which fed its KATUSA troops into the existing units, estimated KATUSA combat effectiveness after a week or so of experience (in early September) as between 25 and 75 percent that of American troops. The division artillery, which used Koreans as wiremen and interior guards, estimated their effectiveness at 80 percent; the military police company rated them 90 percent effective. Ten days later these estimates declined to an over-all figure of 50 percent, and by mid-October they were down to 10 percent.

Buddy System Helped

The 25th Division not only paired a KATUSA soldier with an American "buddy" in the infantry companies to facilitate the passing on of military know-how, but also formed several platoons and one entire company of Koreans as an experiment. After about two weeks the division estimated its KATUSA personnel as having a combat effectiveness of 25 percent that of American troops. Ten days later the division found that Koreans in the buddy system were 50 percent effective; those organized into separate platoons and squads under American noncommissioned officers were 35 percent effective. KATUSA troops in various sections of the lettered artillery batteries were 25 percent effective; those with the reconnaissance company 60 percent. By

mid-October, after all the KATUSA troops had been integrated into the existing squads, the division estimated 60 percent effectiveness in the reconnaissance company, an efficiency of 48 percent in one regiment, and between 20 and 35 in the other units.

The 24th Division used its Koreans as riflemen in the infantry squads, as litter bearers in the medical companies, and as security troops for artillery positions. Estimated combat effectiveness as infantrymen increased from 10 percent in early September to 45 percent by the following month; for the other elements an average of 30 percent. The division reported better than average success when each Korean worked with two American buddies.

The 1st Cavalry Division took its KATUSA soldiers into the infantry squads as riflemen, assistant machinegunners, communications linemen, and ammunition bearers; into the artillery gun squads as linemen and security guards for line crews; and into the reconnaissance company as riflemen, scouts, and observers. Combat effectiveness during the month of September was judged as 50 percent.

Two Controlling Factors

The relatively low performance ratings for KATUSA personnel were the result, basically, of two factors. First, they could not have adequate training. They did not know how to use their weapons. They were unschooled in team tactics. They had not been trained in modern field sanitation practices. They had not had enough training in military discipline and sometimes were difficult to control. (Since offenders had to be turned over to the Korean Army, US units could not administer corrective measures rapidly enough for effective remedy.) In short, 10 days of indoctrination in a training center could not produce soldiers no matter how thorough the program.

Second, there was a vast language and cultural separation between Koreans and Americans. There never were enough English-speaking Koreans or Korean-speaking US personnel to achieve sound understanding and integration and to permit true coordination and control of all troops in combat. Besides placing an additional burden on all combat leaders, the language barrier made it impossible to train Koreans in the technical aspects of weapons and gunnery.

The cultural difference, although more subtle, was no less a problem. The Korean draftee could not be expected to grasp the American concept of everyday living. Understandably, he was bewildered by a new world not only of attitudes and habits but of strange people and machines. The problem of adjustment for a man suddenly thrown into the complex pattern of living in a highly organized modern army in combat could not be solved in so short a period of time.

There was no time for Americans to develop with Koreans the personal relationships necessary for the proper performance of an infantry squad—that echelon where a man's life depends to a large extent on the action of his companions. Where his life was at stake the trained soldier on the line could not be tolerant of any mistake, failure, or undependability, even though the cause might be inexperience or lack of understanding.

Some Performed Well

As a result of the lack of training, the language barrier, and the difference in cultural background the Koreans were unable to perform skilled technical jobs. They did not know or understand supply discipline. Many could not perform well in independent positions such as outposts and listening posts and on guard duty, yet they were quite effective with artillery and service units. Artillerymen used them in the higher numbered positions in the gun squads, where commands could be relayed by arm and hand signals, and as security guards. Ordnance units found them to be

careful welders and good mechanics. Signal units discovered them useful as guards and wiremen.

The KATUSA soldiers obviously tried to be of service in a situation as difficult for them as for the US troops they sought to help. But during the initial and early periods of the experiment—the critical time, when combat troops were needed desperately—their lack of training often tended to make them as much a burden as a help. Their appearance brought joy to US soldiers in depleted units, but the mere presence of more men in uniform was not enough.

Two months after the start of the program, after about 15,000 Koreans had reached US units, the KATUSA experiment was curtailed. In the latter part of October 1950, Eighth US Army headquarters permitted the American divisions to return to the Korean Army those KATUSA soldiers not yet up to standard. The divisions immediately reduced their KATUSA strengths by several thousand; 6,000 Koreans were brought back from Japan. These troops, who had practical training while with American units, formed the cadres of new Korean Army units.

Soon afterward, as American replacement troops became available in increasing numbers, the divisions were allowed to reduce their KATUSA soldiers from the original basis of 100 per company to 25. No additional KATUSA assignments were made to US combat troops, but service units and rear area installations, where KATUSA soldiers performed well, continued to receive limited numbers of them until April 1951.

Those who remained with the US combat elements for several months eventually were sufficiently trained by combat to be an asset to their organizations. They proved invaluable in handling refugees, in securing information from civilians, and in establishing identities of orientals during night operations. If a natural selectivity toward the survival of the fittest prevailed, those KATUSA troops still with US units in 1951 were competent, seasoned soldiers. Unfortunately, when a Korean was evacuated from his US unit for medical or other reasons, he was lost to the command, for he returned to duty through Korean Army replacement channels to a Korean unit. The fact that US troops clamored for a change in this arrangement proved that a good soldier always is appreciated by other soldiers.

Experience Made Soldiers

A year after the program began only a few KATUSA soldiers were left. In the words of a division commander, these troops by then were *highly trained, well-disciplined, and skilled combat soldiers serving for the most part with infantry companies. They are of the utmost value as fighting soldiers, interpreters, and in contacts with Korean civilians.* By then, the original impetus for the program was long since gone. The need had been met by different means.

Although the KATUSA program *did* provide essential assistance to depleted US forces, as an emergency measure to provide *combat effective* soldiers *immediately* it failed. The rapidity of the integration program, the lack of training and the consequent absence of military skills among the KATUSA members, and the profound language and cultural differences made the KATUSA solution fall short of the immediate goal. But this was due to no inherent Korean deficiency. No nationality group so different from Americans could have performed with greater effectiveness. Only after several months of association did better understanding, partial grasp by each group of the other's language and customs, and military training bring about real integration.

Those KATUSA soldiers who survived and who demonstrated an ability to adapt to a new situation and absorb a rigorous training on the battlefield made the transi-

tion. Unfortunately, they were only a handful when compared with the number fed into the program.

Lesson for the Future

In this age of speed when armed conflict may develop literally overnight, when the weapons of war can produce chaos in a matter of seconds, and when trained foot soldiers on the ground well may be the only agency capable of restoring some semblance of order, there is a lesson in the KATUSA experience.

The lesson points to the need for a continued Military Assistance Advisory Group program throughout the free world, a MAAG program of military cooperation devoted to preparing combat troops for instant readiness to meet the challenge of emergency. Implicit in the MAAG effort should be the intent to create a body of linguists among our own troops and among our allies for the administrative echelons as well as for the combat level—troops not only linguistically effective but also combat ready. If, as seems likely, war in the future will open with a violent and devastating shock, the capacity to regain combat effectiveness at once may well determine the outcome of the conflict. *Trained* troops provide the best guarantee of an outcome favorable to the free world.

TO OUR READERS

The United States Army Command and General Staff College has several important missions—of major importance is the preparation and presentation of high-level instruction to mature and experienced officers in resident and nonresident courses each year.

In order to place our doctrine and tactical concepts ahead of the technological and organizational changes taking place in our Army today we found it necessary to accomplish a complete rewrite of all instructional material to be used in the academic year of 1958.

The printing of this new material as compared with previous years has imposed a critical load upon the facilities of the Army Field Printing Plant at Leavenworth, which supports the MILITARY REVIEW in addition to the instructional requirements of the United States Army Command and General Staff College.

Your copy of the MILITARY REVIEW has been delayed slightly each month this spring and summer. We solicit your understanding of the important reasons necessitating this delay and we will return to schedule at the earliest opportunity.—Editor.

Administrative Support--Must It Change?

Lieutenant Colonel Keith M. Schmedemann, *Infantry*
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We must get rid of the logistical tail.

Large supply complexes are a thing of the past.

The system must be responsive to the needs of the command.

We must have flexibility and mobility.

THESE and similar statements are frequently heard arguments and criticisms for bringing our administrative support system and organization into line with new atomic warfare concepts. No forward-thinking individual would question WHY we must view critically our practices in the past for providing support for combat forces; but HOW is this reorientation to be accomplished?

Does the advent of atomic weapons make obsolete existing concepts and doctrine for *administrative support*? Methods of World War II and Korea would generate highly lucrative targets on the atomic battlefield. And to add to the problem, technological advances have increased the complexities of modern warfare equipment, making it more difficult to have the right item at the right place at the right time. The concepts and doctrine for the employment of *tactical* units have not been scrapped, but they constantly are undergoing critical analysis with resulting changes leading to improvements. The administrative support function is difficult to analyze on paper, on maneuvers, or in simulated field exercises, so there is a need to be realistic in viewing the system. Past experience in combat must not be disregarded entirely. Even the atomic battlefield will require supplies and services for the forces engaged.

It is time to place in proper perspective the organization, methods, and principles for providing administrative support for combat forces under conditions of atomic warfare.

Aggressor will not be concerned with our organizational charts. He will not care if the support organization has technical service directors or purely functional subdivisions. Operational control versus command channels will mean little to him. However, he *will* be searching for targets —installations and units which will make it possible for him to inflict the greatest damage, per weapon expended, to our capability of supporting and maintaining combat effectiveness. These targets may be supply or transportation facilities, but command and control means also have increased in significance as potential atomic targets.

One Mission—or Two?

Is there a need for separating the administrative support mission and functions from the tactical mission and functions?

Does the advent of atomic weapons make existing concepts and doctrine for administrative support obsolete? No, not if intelligence and vision are applied now to solving problems posed for these weapons

In a military organization there are two basic tasks: one is fighting and the other is providing administrative support. Present doctrine provides for control of these two functions in a theater of operations by assigning to a communications zone or comparable commander the responsibilities for administrative support so the major tactical commanders may be able to devote their attentions to the tactical employment of their units. The magnitude of the tasks in large-scale operations requires division of the missions. The type of activities involved makes it feasible to separate the two. However, this separation is not a complete cleavage. In the "rear" the emphasis is on administrative support, but attention is oriented on combat operations in proximity to the enemy. Additionally, there is considerable "gray" area, and the functions of combat and combat support will become more closely related on the atomic battlefield as time and space factors are reduced.

The present mission of the communications zone is to provide administrative support—except personnel replacement—for all Army units located in the theater, and such administrative support of Navy, Air Force, allied, and other forces as may be directed. The communications zone commander exercises territorial control within the communications zone.

Lieutenant Colonel Keith M. Schmedemann is a graduate of Kansas State College, and in 1950 received his Master of Arts degree from the American University, Washington, D. C. His service during World War II was with the 38th Infantry, 2d Infantry Division. Postwar duties have included Headquarters, V Corps; Joint Chiefs of Staff; and Department of the Army General Staff. He was battalion commander and regimental executive officer, 27th Infantry, 25th Infantry Division, during the Korean conflict. He completed the Advanced Course of The Infantry School, and upon his graduation from the 1954-55 Regular Course of the USA CGSC was assigned to the faculty where he now is with the Department of Larger Units and Administrative Support.

The future mission of the administrative support commander in an atomic theater will be similar to that stated above. However, several aspects will gain added importance. The lines of communications and the support areas must be defended. Damage control and rear area defense will be major problems, particularly if operations are in areas with unfriendly civilian populations, and if the installations are within the range of the enemy's tactical delivery means for atomic weapons. The administration of the civilian population and the provision of minimum essential care for civilians will have a serious effect upon the accomplishment of the military mission.

The administrative support commander may be required to reorient the political control of the countries involved. And it can be assumed that future warfare will find US forces fighting under the United Nations flag with such attendant problems as handling supplies documented in foreign languages, procuring and distributing different types of rations, and maintaining equipment of types different from US manufacture or US equipment given allies under military aid programs (the latter category may include equipment since replaced in the US Armed Forces).

Many of the future aspects of the administrative support mission are pure conjecture. Therefore, it is logical to restrict considerations here to the more tangible aspects of the mission—supporting the forces.

Must Calculate Risks

Combat operations always have involved a risk. In the future the risk will extend from the frontline foxhole to the limits of the enemy's means to deliver his destructive power. *The risk will be the greatest wherever our vulnerability is the greatest.* But it must be a *calculated* risk.

The support commander must know at all times his vulnerability to mass destruction weapons. He must know at all times the relative vulnerability of each

class of supply, of items (if they are critical), of units, and of other means at his disposal to perform his mission. He must visualize that an entire installation can be lost in a single mass destruction attack. *The success of the support commander on the atomic battlefield will depend upon his ability to calculate his risks, to reduce his risks to acceptable proportions, and to continue his administrative support mission after an attack.*

Reorganization No Panacea

A logical approach toward sound appraisal of administrative support capability is to analyze the organization. Current doctrine emphasizes flexibility of organization. The organization is as flexible and adaptable as the imagination and foresight of the commanders and staffs assigned thereto.

The combat zone and the support or communications zone are divided under current doctrine (for valid reasons already discussed). However, there is no reason why the communications zone must be adjacent to the combat zone. The support organization may be separated by a water barrier or may be within the area of the combat zone, as in the case of an independent and air-supported operation.

Current doctrine on territorial organization of the communications zone provides for employment of an intermediate section only if required. On the atomic battlefield it may be advantageous to employ more headquarters to facilitate decentralization of control, provide for alternate commands, and afford closer supervision. *A headquarters is not expensive in manpower if it contributes to the over-all effectiveness of the organization and if it exped tes the performance of the support mission.* It may be expedient to employ an intermediate section or similar headquarters to control some of the theater of operations functions not directly concerned with the support of military forces.

Although the concepts and principles of organization are sound, reorganization of an existing organization may be required if it is not adaptable under atomic conditions. There must be no resistance to reorganization whenever the conditions for rendering the support are changed. Because the atomic war of the future will be fought under a greatly accelerated timetable, there is a need for development of type administrative support forces for each type of support operation in which this country may become engaged. The predictable types of organizations needed are those which could provide support in a general war on a large land mass, in a peripheral war, and in conjunction with atomic striking forces to afford them an independent operating capability. And, of course, it will be necessary to provide some organization capable of achieving a smooth transition of supply and other support from the Zone of Interior to the combat forces in the field.

A new or changed organizational concept is not the panacea for administrative support on the atomic battlefield. However, there are many opportunities and requirements for improvement and if improvements in current support means and methods are not developed our installations and units providing administrative support may provide Aggressor with his most lucrative targets on the atomic battlefield.

Areas for Improvement

Why should Aggressor place several atomic weapons on the battalions or combat groups of an infantry division advancing to an unfordable river, if three well-placed weapons might destroy the river-crossing equipment for an entire corps? Why expend several atomic weapons on an armored division, which is a mobile and easily dispersed target, if a series of guerrilla raids and small-yield weapons can destroy the petroleum, oil,

and lubricant (POL) reserves and pipelines which permit the armored division to be mobile? These are hypothetical questions, but they illustrate our possible weaknesses. We should take a target analysis approach. *Our units and installations must be planned and controlled so that the least possible amount of supplies or service support will be damaged by a single mass destruction weapon.*

What can be done about these problems of providing administrative support on the atomic battlefield? It must be recognized that a risk is involved, but it must be a planned and calculated risk. Expanding on a previously stated requirement, commanders and their staffs must know at all times the amounts of supply, services, units, and other support means that can be damaged if Aggressor elects to implement his most dangerous capability. A system of priorities must be established for the protection of supplies and units in order of their criticality. Then, all possible active and passive defense measures must be taken within the resources of the command.

To place the over-all problem in practical perspective, there are several areas where improvement must be accomplished. These are:

1. Transportation.
2. Reduction in tonnages and supply levels.
3. Improved logistical procedures.
4. Improved communications and control.
5. Trained and experienced logistics personnel and units.

Transportation versus Levels

Mobility depends upon transportation. Levels of supply, in terms of tonnages, must be reduced if mobility of logistical support is to be achieved. If the transportation capability is reduced, there is an increased need for backup or reserve installations so that supply levels may be increased. *Mobility and supply levels are a function of transportation.* If we are capable of moving supplies and services from sources in the Zone of Interior to the user on the battlefield, there is little requirement for large reserves. However, transportation capability also is a function of control of the air, of the sea, and of the land lines of communication. If we have absolute control, the decision is ours. But no nation can expect absolute control until its enemy capitulates.

This dilemma must be approached rationally. The transportation capability must be analyzed thoroughly before reserves are reduced arbitrarily. At the same time the size and composition of these reserve supplies, units, and services must be analyzed to make certain they are not so large as to cause immobility. There is no easy formula—it is a calculated risk.

Much of the answer lies in supply and movement by air. It may be assumed or hoped that allied forces will have sufficient control of the air to make ground operations feasible, both tactically and logistically. But what if such control is not present? Is there no ground combat? Mobility is essential when control of the air is marginal and even more so when it rests with Aggressor.

The conclusion concerning transportation should be obvious. *The most flexible means must be developed and used to maximum capacity.* Flexibility must be given priority over economy. A single transportation means, such as railroads, cannot be used exclusively even though it may be more economical. Contingent upon availability and allocation, air should be developed and used at near capacity with the cargoes arranged under a system of priorities.

Exploit Every Means

Highway transportation has a great potential but it is vulnerable. Inland waterways can move heavy tonnages, but they are so inflexible that their military

use is questionable. Available waterways could be used to advantage in support of the civilian economy. Pipelines are the most rapid and economical means of moving liquid supplies (petroleum, oil, and lubricants) in the vast quantities required in future combat. However, the fixed nature of the pipelines, pumping stations, and tank farms makes them vulnerable so that alternate means also must be provided. Current capabilities indicate that there is no limit to the amount of deception that can be developed in pipeline construction. Operating pipelines must be concealed and protected to the maximum extent.

As indicated, supply levels and tonnages can be reduced in concert with increased transportation capabilities. These levels are computed generally in terms of *days of supply* in relation to the *numbers of troops supported.* If the reliability of effecting resupply can be improved, the levels can be decreased.

The operating level is the quantity of matériel required to sustain operations in the interval between arrival of successive shipments. Operating levels must be readily available to users and can be assumed to be within the radius of the enemy's atomic delivery means.

The safety level is the quantity of matériel (in addition to the operating level) required to permit continued operations in the event of minor interruptions of normal replenishment or unpredictable fluctuations in supply demand. If the transportation capability permits, it appears that the safety level of supplies should be physically located beyond the radius of the most probable atomic delivery means the enemy will use. Aggressor's atomic capability, including number, yield, and delivery means, should be used as a criterion in determining quantities for both operating and safety levels. These levels, in turn, must be evaluated in terms of transportation capability.

The Constant Challenge

Improvements in logistical procedures cover a variety of activities which can contribute to reducing the problems of supporting combat forces under atomic warfare conditions.

Improvements in logistical procedures are guided by the well-accepted principle —"delegation of authority commensurate with responsibility." Operations in a communications zone or any administrative support command must be decentralized to the maximum practical extent. Current doctrine is sound in requiring that commanders of operating units be given clearly defined missions for the support of specific units or forces. They must take aggressive action to ensure that such support is rendered to the limits of their capabilities. If the administrative support command or communications zone is divided into sections, the section commanders must continue to have the authority to control all operations within their area. They must have the staffs and other means to operate effectively. Atomic conditions may require even further decentralization to area commands.

Decentralization does not mean that there will be no centralized control and planning. With the possibility of mass destruction weapons being employed against support installations there is a continuing need for centralized and alternate control means. However, practices which will require operating units to obtain approval and direction for their operations from two or more higher echelons must not be permitted to exist.

Fewer Fixed Installations

Administrative support procedures should provide for the maximum reduction in "fixed" installations. Protection of fixed installations from atomic attack is expensive in material, requires excessive time, and needs costly maintenance. Conversely, the price of mobility is increased military personnel in self-contained units. It must

be recognized that it will be physically impossible to achieve complete mobility for supplies and the higher echelons of maintenance support.

The following are types of procedures which should be adopted for administrative installations in recognition of the enemy atomic capability:

1. Establish more than one service area or group of installations, each containing depots with similar types and amounts of supplies. *Small general depots may be an answer.*

2. Disperse similar supply installations within the established groups of installations.

3. Use underground or similarly protected storage areas.

4. Camouflage and conceal installations, to include extensive use of smoke generating equipment.

In addition to these procedures criteria should be established to govern the relative amounts of supplies allowed to be stored in a single location which could be destroyed by one atomic weapon. In developing such criteria the enemy should be given credit for adequate intelligence and accurate delivery means for his weapons. For example, assume that artillery ammunition for the infantry divisions of a field army is stored in 10 locations within an advance section of the communications zone. Each location has relatively well-balanced stocks by type. The ordnance officer of the advance section then would know that one atomic weapon could destroy only one-tenth of his ammunition, and at least 10 weapons would be required to destroy all that type of ammunition. If he knew the number, type, and delivery means available to the enemy, he could calculate the relative risk of his Class V depots being destroyed.

Reexamine Maintenance

Maintenance procedures and practices on the atomic battlefield must be reappraised due to greater combat losses and the necessity to reduce equipment requirements to bare essentials. Experts of the technical services are required to develop the detailed procedures, but certain guidelines appear appropriate and necessary under atomic conditions. These are:

1. Depot maintenance and rebuild operations in fixed installations should be conducted out of the range of the enemy's most likely used tactical delivery means for atomic weapons. It may be necessary to remove such operations from the theater of operations. Maintenance and rebuild should be analyzed in terms of the transportation requirements they generate and the probable delay in return to service of repaired items.

2. Communications zone and administrative support units actively engaged in direct support of the combat zone should be limited to fourth echelon maintenance.

3. Increased authority and procedures must be established for forward units to perform field expedient repairs on damaged equipment.

4. Criteria should be established for all major items of equipment to guide users for cannibalizing, evacuating, or abandoning the equipment. Atomic conditions may well dictate more frequent cannibalization or abandonment than has been practiced heretofore.

Project MASS May Help

The Modern Army Supply System (Project MASS) being tested and installed in Seventh Army and United States Army, Europe (USAREUR) is the major recent advancement in the improvement of procedures for administrative support of large forces. This project is described very clearly in the July 1956 issue of the *Military Review*. Project MASS presents the possibility of making a logistical system really responsive to the needs of the combat forces. Modern electronic equipment and progressive ideas are being combined to reduce the time lag between the expression of the need by the consumer

and the delivery of the items from the sources of supply. Electronic transmission of supply data for processing requisitions and controlling supply, and air transport to the using agency are the key ingredients which promise success for the project. Such delivery reduces reserve tonnages and supply handling in and out of depots. Project MASS has changed the old logistical concept that the impetus of supply is from the rear to the front. Now the impetus will be *from* the front. Items are requisitioned only when needed, the "paper" is processed rapidly, and the supplies are moved rapidly from supplier to user.

Communications Essential

The need for improved communications is well recognized in the control of tactical units in atomic warfare. The need is equally acute in the support of administrative units and headquarters. Supplies and operating units will be dispersed over wide areas. User requirements will come from a wide variety of sources. Higher headquarters must continue to exercise control over resources, and be able to allocate such resources from any point in the area.

The area grid system of communications is one answer to the requirement. The administrative support area must have adequate priority on the equipment and units to operate the grid communications nets which will permit a much greater capability of direct communication between user and supporter than has been possible in the past. A logical extension of the electronic capabilities of MASS would be a master net throughout the theater using electrically transmitted data for the conduct of administrative support activities.

Need Progressive Training

A final area for improvement is represented by the need for trained and qualified logistics personnel and units. This need is recognized from past experience to the extent that logistics headquarters units now are provided on tables of organization, instruction is incorporated in the Army school system on logistics and management, and a separate career pattern has been established for logistics officers. Much of the justifiable past criticism of logistics systems is chargeable to inadequately trained and inexperienced personnel, rather than the organization.

Analyses of vulnerabilities of units and installations will require a high degree of training and judgment in officers assigned to administrative support organizations. There is a need for special weapons personnel and camouflage experts who can appraise existing and planned dispositions and develop ways to reduce their vulnerabilities. Self analysis of friendly installations must be much more complete and detailed than the analyses performed by the enemy's intelligence operators.

Additionally, there will be a great need for trained and experienced logistics personnel who can make sound allocations of services and supplies. Combat in the past has been marked by various shortages. Combat in the future, in which mass destruction weapons are employed, will result in more pronounced shortages occurring on much shorter notice. Administrative support commanders and their staffs must be experts on making allocations, and they must plan allocations even before the shortages exist. Plans and directives issued to operating support units will have included the priorities to be followed in rendering supply or service support. The ability to allocate available means may determine success of the support mission.

Conclusions

Atomic conditions emphasize the need to be critical, but realistic, in viewing the system for providing administrative support. The objective of the system should be efficient and economical support, sufficient to enable the combat forces to have maximum flexibility of employment. Cer-

tain guidelines will help retain a proper perspective for administrative support in the future. These are:

1. The present mission of the communications zone, or comparable support agency, will be valid on the atomic battlefield but there are aspects of operations which will vary greatly from past experiences.

2. *Reorganization, in itself, will not ensure an effective system.*

3. Every practice, procedure, and policy must be studied in view of the enemy atomic capability. A target analysis approach is a sound method to determine the relative vulnerabilities of installations, units, and control means, and to uncover any other possible weaknesses in the system.

4. *Mobility and supply levels are dependent directly upon the transportation capability.*

5. Project MASS is changing existing concepts so that the impetus of supply is from the front to the rear.

6. *The entire support picture must be visualized in terms of the forces being supported.* The support of military forces, like the tactical employment of such forces, will involve a risk, but it must be a *calculated risk.*

Imagination, resourcefulness, and technological advances are evolving an administrative support system that is responsive to the needs of the combat commander: flexible to accommodate foreseeable types of warfare; compatible with atomic conditions.

At the end of World War II . . . great authorities had this to say about logistics. General Marshall said, 'The requirements of logistics are seldom understood. The burdens they impose are seldom appreciated.' In that same era General Eisenhower said, 'It is logistics which controls all campaigns and limits many.' Admiral King said, 'Whatever else the war is, so far as the United States is concerned, it is a war of logistics.'

Today competent military authorities agree that the logistics problem is at least four times more complex than it was in World War II.

Logistics is the bridge between the industrial plant, the farm, our raw materials, our skilled manpower, and our scientists, to the military forces in the field.

Assistant Secretary of the Army Frank H. Higgins

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Schools Redesignated

The Antiaircraft Artillery and Guided Missile School at Fort Bliss, Texas, has been redesignated the U.S. Army Air Defense School to keep pace with weapons development and bring the designation of this school into line with the name of the U.S. Army Air Defense Command at Colorado Springs, Colorado. The Artillery and Guided Missile School at Fort Sill, Oklahoma, has been renamed the U.S. Army Artillery and Missile School because the Army's arsenal of artillery rockets includes both guided and unguided missiles. Both changes became effective 1 July.—Official release.

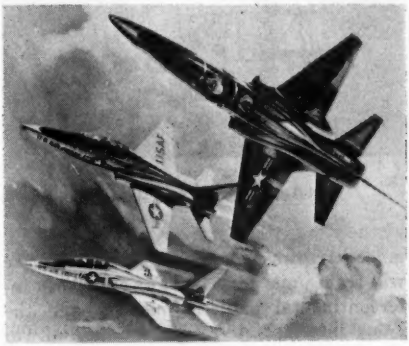
Fuel Developments

Thiokol, a widely used rocket fuel, is based on a synthetic rubber used to bullet-proof airplane gasoline tanks in World War II. One of its outstanding features is its ability to expand or contract under heat without cracking.

In another development, ceramic fuels have been successfully tested for use in atomic power reactors. Ceramic fuels are said to have the advantage of a high resistance to corrosion in water, and grow very little in size under radiation. Some all-metal, atomic fuel elements have been known to double in length and to become distorted in shape during intense radiation. Such physical changes can become dangerous according to atomic engineers.—News item.

Fast Jet Trainer

The Air Force's *T-38* is a supersonic, lightweight jet trainer with a performance capability matching the characteristics of



Three views of the *T-38*

top-speed operational aircraft. The instructor will sit in a raised seat in the rear cockpit which enables him to check the student movements and reactions. The fuselage of the *T-38* is designed with the "Coke bottle" or area rule configuration.—Commercial release.

Missile Facilities

Construction of a 100 million-dollar Air Force facility, where units will be trained to handle intercontinental ballistic missiles, has been started. The installation is scheduled to go into full operation within 18 months. The training center will be located

Atlas missile test tower

at the site of the former Camp Cooke, 168 miles northwest of Los Angeles. The base will train units for the *Atlas* and *Titan* intercontinental ballistic missiles, and the *Thor* intermediate-range missile, all of which are under development.

An 83 million-dollar contract for electronic equipment for the *Atlas* ballistic guidance system has been announced. Captive testing of the rocket engines of the *Atlas* is being carried out in two west coast bases. The *Atlas* is in pilot production.

It also has been reported that the South Atlantic missile range, the only range available for testing the intercontinental ballistic missile, will not be fully prepared for operation for at least a year. Comprehensive tests of rockets with ranges of 5,500 miles will be possible when the tracking stations on Brazil's Fernando de Noronha Island and Great Britain's Ascension Island are completed. The other 10 tracking stations of the network, the southernmost of which is 1,400 miles from the Canaveral, Florida, launching site, are currently in use for tracking shorter-range missiles such as the *Thor*, *Jupiter*, and *Snark*.—News release.

Remote Control

Using a unique remote control system, a helicopter has brought an unmanned Marine landing vehicle (tracked) ashore through dangerous surf conditions success-

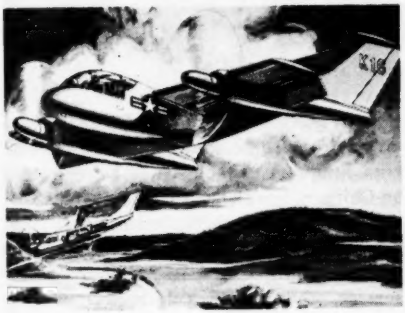
Remote control system test

fully in operational tests. Designed to operate under extreme environmental conditions, the system can be installed easily in any tracked or wheeled vehicle. It uses electromechanical actuators to perform the control functions. Ordinary manual

operation of the vehicle is not hampered, and quick switchover to remote control is accomplished easily. This system, which functions either by radio or through an electric cable, will permit a vehicle to be used for television surveillance of remote, hazardous, or otherwise inaccessible areas. —News item.

Revolutionary STOL Plane

A new and different STOL (short takeoff and landing) aircraft is under development. The system utilizes two propulsive rotors driven by gas turbines, the rotors having small controllable flaps in their

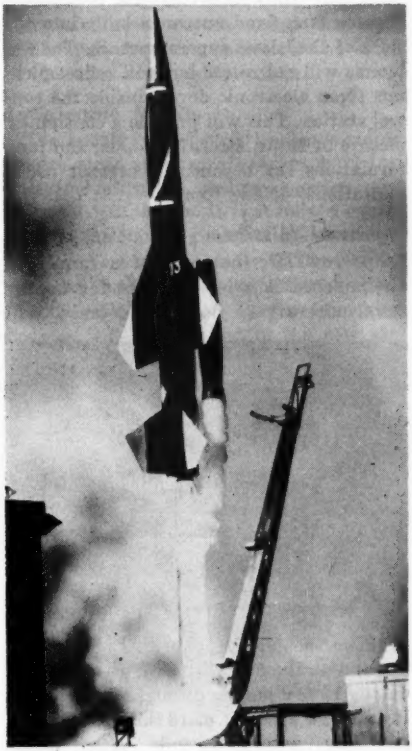


Gas turbine STOL plane

trailing edges to provide control by changing the lift characteristics of the blades. This is expected to give the pilot full control of the airplane at speeds under 50 miles an hour. Above this speed, the flap system in the rotors automatically phases out and conventional aileron and rudder take over. Flaps on the wings provide additional lift during takeoffs, landings, and slow-speed flight. The aircraft's speed under this concept will range from zero to more than 300 miles an hour.—Official release.

'Bomarc' in Production

A seven million-dollar contract has been announced for the quantity production of the *Bomarc* interceptor guided missile (MR, Apr 1957, p 67), and another 13 million dollars worth of component parts have been placed on order. The *Bomarc*, which is larger than a *Sabre Jet* fighter, unofficially has been reported to have a speed of



Bomarc in vertical takeoff

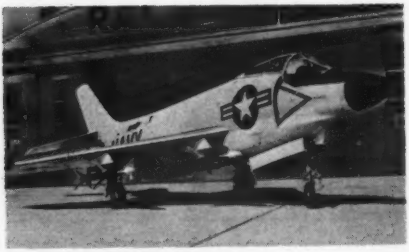
more than 2½ times the speed of sound. The range of the rocket has not been officially released. It is known that the experimental missiles on which it was based had reached altitudes of 80,000 feet and the press has reported the *Bomarc* to have a range of between 200 and 300 miles. The *Bomarc* is propelled by a booster rocket and two *Marquardt* ramjet engines.—News item.

Atomic Carrier

The Navy has been authorized to proceed with the development of a 300 million-dollar, atomic-powered aircraft carrier (MR, Jan 1957, p 64). The carrier will be equipped with a radar system that incorporates four fixed antennas built into the sides of the island superstructure. The antennas will not rotate but will reflect pick-ups to an electronic device inside the control station. This will provide a continuing picture of ships, aircraft, clouds, and land formations far beyond the present radar limitations.—News item.

Improved Missile

Sparrow III, the third of a family of air-launched missiles designed for use by naval aircraft in fleet air defense, will



Sparrow III in wing mounting

augment the earlier *Sparrow I* now operational with the fleet. *Sparrow I* is approximately 12 feet long and weighs 300 pounds. It attains a speed of more than 1,500 miles an hour within seconds after being launched. *Sparrow II* is an experimental missile not intended for operational use.—Official release.

Aluminum Fire Truck

A highly mobile aluminum fire truck designed especially for the combating of fires involving nonconventional fuels can operate in temperatures as low as 65 degrees below zero and as high as 125 degrees above. It is equipped with a turret to combat large fires that are inaccessible by hose, and carries a 1,000-gallon water tank, and 150 gallons of concentrated foam. A pump driven by the main engine provides for discharge of fire extinguishing foam at rates up to 6,000 gallons a minute. Although it weighs 39,000 pounds and is 28 feet long, it can attain a speed of 60 miles an hour, and has a turning radius of only 40 feet. —News item.

Blood Container

A plastic bag has been developed to replace the glass bottles used in battlefield blood transfusions. The new container has the advantages of being unbreakable, disposable, easier to package, and safer to transport.—News item.

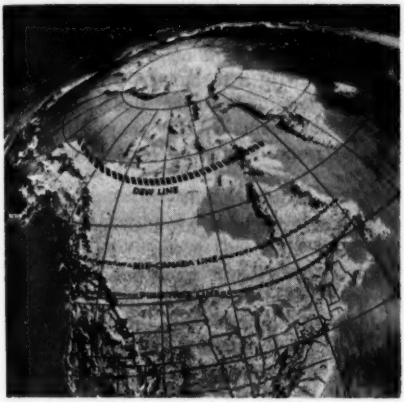
Language Training

A recently announced program urges every career officer in the United States Army to learn to speak at least one foreign language. Emphasis is being placed on Chinese, Spanish, French, German, Russian, and Japanese. While the program is primarily aimed at Regular officers with more than three and less than 20 years' service, other than Regular officers with at least three and no more than 16 years' service also are encouraged to volunteer for language training. Interested officers may be sent to the Army Language School if quotas are available, or they can sign up for language training at post education centers.—News item.

Early Warning System

The DEW (Distant Early Warning) Line, northernmost of the three lines of the radar screen system of Continental Air Defense Command, is scheduled for final tests this summer. Construction of the DEW Line installations utilized approximately 396 tons of material. Canadian and United States expenditures for the project were 334 million dollars. Supplementing the landbound system is the North Atlantic Barrier Command which employs both

aerial and surface forces in extending the early warning system into the vulnerable North Atlantic area. The air component of



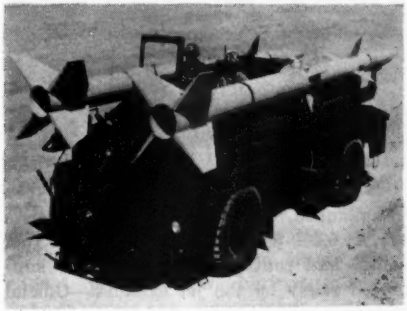
the Atlantic system employs three airborne Early Warning Squadrons flying the four-engine *Superconstellation* aircraft (MR, Apr 1957, p 63). Aircraft of these squadrons are in the air 24 hours a day, and are capable of detecting enemy aircraft at distances of over 100 miles.

The Barrier Command's surface operation utilizes two 8-destroyer picket squadrons equipped with high-performance electronic gear. The warning line also is planned for extension into the Pacific Ocean. It will include ships operating from Honolulu to Midway, and will tie in with operations in Alaska and the North Pacific.

New equipment destined for use in the early warning system include a revolutionary radar-carrying airship, and a reported underwater system to warn against the approach of enemy submarines. The nonrigid blimp, which contains about 1,500,000 cubic feet of helium and is one of the largest ever built, is under test. Its radar equipment will include a giant "bedspring" antenna revolving inside the gas bag of the airship. Four smaller radar warning lighter-than-air ships (MR, Jun 1957, p 67) are planned for use to supplement other detection devices in the North Atlantic this summer. The underwater detection system is said to be based on highly advanced sonar devices linked together in long chains on the ocean floor. The unconfirmed report stated that with this system ships can be detected as much as 100 miles away.—News item.

Antiaircraft Missile

The needle-nose *Terrier*, a beam-riding booster-aided antiaircraft rocket, is 27 feet long including its in-line booster, and weighs 3,360 pounds. It is standard equipment on the Navy's guided missile cruisers, the *USS Boston* and *Canberra*. The *Terrier* has a range of 20 miles and attains a speed of 1,330 miles an hour. *Terrier* launching systems will be installed in the new aircraft carriers *Kitty Hawk* and *Constellation*, and in a new class of guided missile



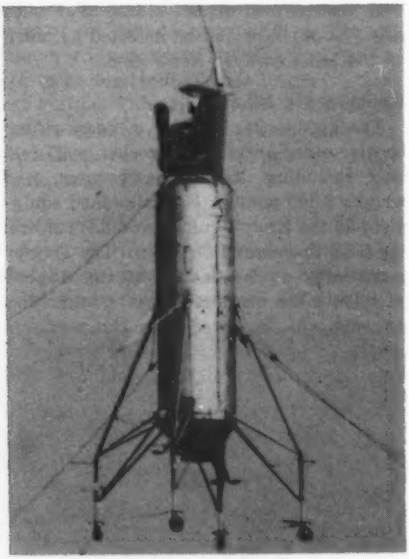
Marine *Terrier* transporter

frigates. These vessels are all included in the 1956-57 construction program. Additionally, the *Cleveland* class cruisers, *Providence*, *Springfield*, and *Topeka* are under conversion to equip them for launching the *Terrier* missile. The Marine 1st Medium Antiaircraft Missile Battalion also is equipped with this weapon. A unique special-purpose transporter has been developed to handle the *Terrier* at the shore-based Marine installations.—News item.

FRANCE

Flying Engine Tested

The *Atar Volant P.2* (MR, Dec 1956, p 68) is undergoing piloted tether tests; free flights without the safety equipment



Atar Volant P.2

are planned. The three-ton *Atar* consists of a 6,200-pound thrust engine, fuel tanks, and control apparatus. It is supported solely by the jet exhaust.—Official release.

Antitank Missile

The United States, Sweden, and West Germany have ordered a total of 2,400 of the *SS-10* antitank guided missile (MR, Oct 1956, p 72). The electrical cable control system used in guiding the *SS-10* to a target is said to avoid the jamming which is possible against radio-controlled weapons. One published account credits the *SS-10* with a record of 90 percent hits against Soviet-built tanks in the Sinai Campaign last fall.—News item.

Rocket-Jet Plane

The *Mirage III* delta-wing interceptor has attained 1½ times the speed of sound with a 9,920-pound thrust engine. A later version of this aircraft is being equipped with an *Atar* engine of over 1,300 pounds of thrust with afterburner, and auxiliary *Sepr* rockets. The later model will have the most recent GAMD search and fire control radar system.—News item.

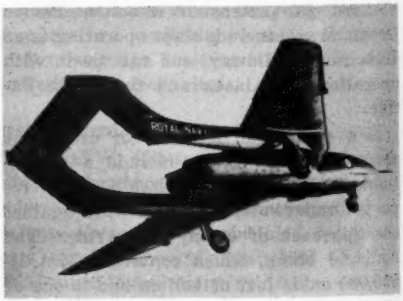
Atomic Power Plans

France expects to produce 800,000 kilowatts of electrical power by atomic energy by 1961, and anticipates that five percent of her electrical power needs will be met by atomic generator plants by 1965. The one billion-dollar atomic development plan also includes the construction of a plant to produce Uranium 235, the basic atomic fuel. French requirements for U 235 currently are supplied by United States sources.—News item.

GREAT BRITAIN

Naval Fighter Tested

The *D. H. 110 Sea Vixen* is in its final test program and will eventually take over from the *Sea Venom* as the Royal Navy's primary, all-weather fighter. The final developed form of the *Vixen* includes



All-weather *Sea Vixen*

power-folding wings, a hinged radome nose for easy handling and maintenance, longer undercarriage legs, a modified tail-

boom angle for greater ground clearance, and wheel-well doors that retract when the landing wheels are down. Primary armament will be guided missiles. The two-seat day and night fighter is powered by two *Rolls-Royce Avon* jet engines. Performance data for this aircraft have not been released for publication.—Official release.

Persian Gulf Pipeline

An agreement between major oil companies has resulted in a plan to construct a giant pipeline from the Persian Gulf to the Mediterranean Sea. The pipeline will be designed to begin operation with an annual capacity of 40 million tons of crude oil and eventually be able to transport 70 million tons per year. The project is expected to cost about 840 million dollars.—News item.

'Britannia' Ordered

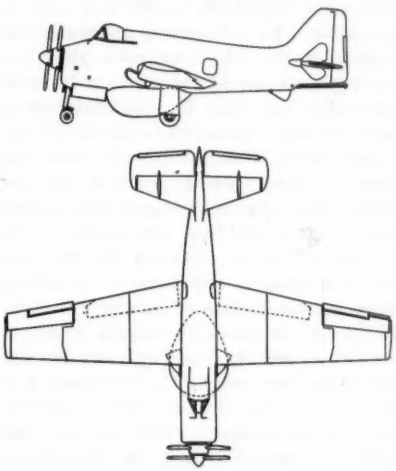
Five *Bristol Britannia* airliners have been placed on order for a United States airline. Nicknamed the *Whispering Giant*, the big plane is powered by four *Porteus* turboprop engines, has a cruising speed of 400 miles an hour, and can carry 110 passengers. *Britannias* are in use on the

Interior of *Britannia* fuselage

London-South Africa and London-Australia routes, and by Israeli and Canadian airlines.—Official release.

Flying Radar Control

The *Fairey Gannet AEW. Mk.3* is designed for use as a flying radar control center for the Royal Navy, and will be



Fairey Gannet AEW. Mk. 3

used by aircraft carrier task forces to extend the range of their defensive radar systems. By carrying radar search equipment to altitudes well above the sea, the new *Gannet* will overcome the line of sight limitations of radar beams which cannot "bend" over the horizon. It will be used to detect the approach of enemy aircraft, to direct fighters onto interception courses, and to seek out surface vessels and snorkeling submarines. The radar is housed in a large dome under the fuselage of the aircraft. The *Gannet* is powered by a *Double Mamba* turboprop which consists of two *Mamba* engines placed side-by-side, each driving one of the coaxial contrarotating propellers. For long-range cruising, one of the engines can be stopped and its propeller feathered. Full power of both engines is used mainly for takeoff and combat.—Official release.

Largest Helicopter

The *Fairey Rotodyne*, said to be the world's largest helicopter, will carry 48 passengers at a speed of 170 miles an hour, and is designed to compare favorably with fixed-wing planes in range and cost of operation. The twin-engine helicopter utilizes a 90-foot diameter rotor that sustains the weight of the aircraft in vertical flight, and goes into autorotation in cruising flight when the aircraft is propeller driven. Two 3,500-horsepower turboprop engines provide power to the propellers and drive compressors that supply air to the rotor tips, where jet fuel is burned to develop jet thrust for the rotor. The *Rotodyne* is expected to be able to hover on one engine at maximum weight, and to climb on single-engine power at a rate of 200 feet per minute. The big helicopter can carry a 15,000-pound payload in its 46-foot-long cabin, and will have an operational range of over 600 miles. Production cost of the *Rotodyne* is expected to be about $644,000.—News item.

NATO

Communication System

Negotiations have begun for the construction of a revolutionary radio transmission system for the North Atlantic Treaty Organization. The network will utilize the "scatter system," in which radio frequencies are beamed to the outer atmospheric regions where they are reflected back to earth. This provides transmission of messages up to about 1,300 miles, eliminates the necessity for many of the relay stations, and will reduce the number of operators to about 250 for the entire system. It is expected that the new network eventually will be in operation from the northernmost tip of Norway to the eastern part of Turkey, and will tie in to the Western Europe air defense system. The present method of operation is considered inadequate because of the expensive military microwave radio relay system which requires a relay station every 30 miles, and is vulnerable to enemy jamming. The current method also calls for the use of civil circuits which will shift to military use in an emergency. —News item.

EAST GERMANY

New Fighters Reported

It has been reported that the East German Air Force is being equipped with the *MiG-19 Farmer*, one of the Soviet Union's first-line jet fighters. The swept-wing *Farmer* is said to be capable of exceeding the speed of sound in level flight.—News item.

OUTER MONGOLIA

Soviet Aid Plans

A recently announced Soviet aid program for Outer Mongolia includes the surrender of Soviet interests in Mongolian oil and metal industries, and the return to Mongolian control of two airports which have been in use by Soviet military forces in Ulan Bator and Sain-Shande. The announcement of the aid program included information that since 1947 the USSR has granted Mongolia long-term credits in the amount of 900 million rubles. Before the recent devaluation of Soviet currency, this would have been the equivalent, on paper, of about 225 million dollars. Other equipment, which the announcement stated would be delivered to Mongolia between 1958 and 1960, includes 2,500 tractors, 3,000 trucks, and 200 diesel and locomotive power units.—News item.

JAPAN

Armed Forces Progress

The Japanese ground forces are currently at a strength of 160,000. The navy has 22,716 men, four destroyers as its most powerful warships (MR, Apr 1957, p 70), and 73 planes, including six *P2V*

Neptunes received from the United States. The 15,000-man air force has 387 aircraft, of which only 131 are combat types. Plans for the expansion of the Japanese forces include a goal of 180,000 men in the ground forces by 1960, a naval strength of 35,000, with 124,000 tons of shipping and 200 aircraft. The air force is to be brought up to a strength of 35,000 and will have 1,300 aircraft, of which 700 will be combat types.—News item.

Submarine Chasers

Four of the seven submarine chasers built under the 1954 program are the *Kari*, *Kiji*, *Taka*, and *Washi*. These 310-ton vessels have a speed of 21 knots. The other three vessels, the *Kamome*, *Tsubame*, and *Misago*, have a displacement of 330 tons and a speed of 20 knots. All of these vessels are armed with a 40-mm dual mount, two depth charges, and one hedgehog antisubmarine weapon. In appearance they are flush-deckers with the bridge structure separated from a squat raked funnel in a small amidship superstructure, and with antisubmarine equipment aft. —News item.

ISRAEL

Merchant Fleet Plans

Plans for expansion of the Israeli merchant fleet include the acquisition or construction of 30 new vessels by 1963. Some of the new vessels will be oil tankers in the 20,000- to 30,000-ton class. The Israeli Fleet currently consists of three large passenger liners, two passenger-cargo vessels, four tankers, and 20 cargo vessels. —News item.

Military Display

Equipment of the Israeli military forces displayed in a recent parade in Tel Aviv included 76 jet planes among which were British-made *Meteors*, and French *Mystère IV B*, and *Ouragan* aircraft. Ground equipment included Russian *T-34* tanks and *SU-100* self-propelled artillery weapons, Czechoslovakian antitank guns, British 25-pound howitzers, and *Sherman* tanks.—News item.

SWITZERLAND

Jet Trainers Ordered

Twenty *Vampire T. Mk. 55* jet trainers have been placed on order by the Swiss Government. The *T. Mk. 55*, a training version of the *Vampire* jet fighter, is in service in the air forces of 20 nations of the free world. Powered by a 3,500-pound thrust *Goblin* turbojet engine, the widely used trainer can achieve a maximum speed of 549 miles an hour. The aircraft provides a side-by-side seating arrangement for instructor and pupil, and is the standard advanced trainer of Great Britain's Royal Air Force and Navy. Normal armament of the *Vampire* consists of four 20-mm cannon—rockets and bombs also may be carried in wing mountings. Under agreement with the British manufacturer, the fighter version of the *Vampire* and its *Ghost* engine are currently in production in Switzerland.—News item.

Experimental Jet Fighters

Flight tests are being made of an experimental jet fighter, the *P-16*, designed specifically for the Swiss Air Force. The aircraft has been developed by a Swiss company that builds planes for the Swiss Government exclusively. The *P-16* has a moderately swept-back wing, large wingtip fuel tanks, and big air intake tubes located above and ahead of the wing roots. It utilizes a tricycle landing gear with twin wheels on both main and nosewheel units. Performance figures of the *P-16* are not yet available, but the specifications to which it was designed called for a single-seat aircraft. The aircraft primarily is intended for ground attack operations carried out from short runways situated in narrow valleys at considerable altitudes above sea level.—News item.

DENMARK

Training Arrangements

The arrangement under which Danish aircraft pilots and navigators are being trained by the Canadian Air Force will continue for the next three years. Using this system about 55 Danish pilots are expected to receive training in Canada each year. Pilots from Norway and Holland also are being trained by the Canadian Air Force under a similar arrangement. It is reported that approximately 100 Danish Army specialists are to be schooled in the United States in the use of defensive rocket arms.—Official release.

TAIWAN

Rocket Unit Arrives

A United States missile unit armed with *Matador* missiles (MR, Jun 1956, p 70) is now stationed in Taiwan. This is the fourth *Matador* unit to be located outside continental United States, and the first weapon unit of its kind to go to the Far East. Three similar groups are stationed in Europe.—News item.

KOREA

Second Largest Army

The 20 combat-ready divisions and 10 reserve divisions of the Republic of Korea (ROK) Army comprise the second largest army in the free world, and the only free world army deployed against an armed enemy, according to the chief of the United States Military Advisory Group, Korea. The military schooling system of the ROK Army includes 14 service schools, an aviation training center, a WAC training center, and a large replacement training center. Additionally, the Korean Military Academy has graduated its second class of four-year students, and a logistical school is in operation. The United States Army Advisory Group in Korea has functioned in support of Korean military effort since 1949.—News item.

TURKEY

Munitions Order Received

The Federal German Republic has placed an order for 186 million dollars worth of ammunition to be manufactured in Turkey.—News item.

USSR

Atomic Centers

Atomic energy centers are located at Obninsk, 55 miles south of Moscow, and Dubno, north of the Soviet capital. Obninsk is the site of a 5,000-kilowatt power station; Dubno is the site of the Soviet bloc joint nuclear research institute and has a 10 billion-volt cyclotron (MR, Dec 1956, p 71). Lermontov, a new city in the Caucasus about halfway between the Black and the Caspian Seas, also has been reported to be a secret atomic research center.—News item.

VENEZUELA

Nuclear Center

An atomic reactor site and research center are under construction about nine miles to the southwest of the Venezuelan capital city, Caracas. Construction of the 50 million-dollar installation began in 1954. The reactor is expected to be in operation in about a year.

It also has been announced that construction of the first nuclear powerplant in Cuba will begin this year. Brazil's first reactor will be in operation this year.—News item.

WEST GERMANY

German-Built Plane

The German-built *Blume B1.502* has been test flown and is planned for construction. It is a four-place light cabin monoplane with retractable tricycle landing gear; the wings have a straight center section and are dihedral in the outer sections only. A 140-horsepower engine gives it a maximum speed of about 150 miles an hour.—News item.

FOREIGN MILITARY DIGESTS

Divisional Organization

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WHEN considering fighting organization, although nuclear global war looms very large, the British Army has to be prepared to move quickly to a wide variety of places and to operate under very differing conditions. Our principal formations must be general purpose.

The present concept is that global war will open with intense strategic nuclear bombardment. We must, therefore, plan and prepare to operate against a background of great destruction. This destruction certainly will include a proportion of the depots, stocks, and means of communication needed to provide the logistic support for armies in the field. As land operations develop, attack on the system of logistic support may well be intensified. The highly organized and lavish provision to meet the needs of fighting formations which we saw in the concluding stages of World War II will not be practicable under conditions of global war.

In the long run it will be the force that can manage efficiently with the minimum tonnages to support it that will be best able to fight out the land battle. Motor fuel, of which land forces now consume such vast quantities, will not be easy to move or store. Vast numbers of vehicles will be a liability rather than an asset.

Remember that this will be a two-way traffic—the enemy's logistic system will suffer as much and more than ours. In the end it will be well-led men, organized, trained, and equipped to meet these conditions who will be the deciding factor in the land campaign.

Land Campaigns

The main contributions of nuclear weapons to the conduct of land operations are to:

1. Provide devastating supporting fire without the need to concentrate masses of guns and without the immense logistic effort required for dumping the necessary ammunition.

2. Provide a constant threat to the enemy if he attempts to concentrate overwhelming strength.

These weapons provide firepower of an entirely new order and their use generally will be the vital element in a commander's

plan, but they will produce their full return only when they are integrated into the operations of the land forces as a whole. It is in offensive operations and in counterattack operations in the defensive battle that they will be used with the greatest certainty of success.

If they are to be used to destroy enemy concentrations, two conditions must be fulfilled—the enemy must have concentrated and we must know that he has done so. In the present state of development it is very doubtful whether our knowledge of enemy concentrations will be even as good as in the past. In offensive operations, and this includes counterattacks, the use of nuclear weapons to ensure that the commander's intentions are carried out with certainty and economy is the best way of getting full value for the weapon.

Used purely defensively they will be of immense value when enemy concentrations are known to exist. In this connection the value of an obstacle will be much greater than before, provided that the obstacle is not regarded as a means of permanently stopping the enemy but is used to divide him and force him to concentrate before and after crossing. If this is done, opportunities may arise to destroy concentrations before and during the crossing and to deliver decisive nuclear supported counterattacks against the part of his army that succeeds in crossing.

In both offensive and defensive operations we shall not be successful unless we produce adequate concentration in the vital areas. This implies that we can move smoothly and without confusion from dispersal to concentration and to dispersal again. To do this we must have great flexibility and battle mobility.

The one thing that will deprive us of both these qualities is the masses of vehicles that were thought necessary at the end of World War II. If the number and variety of vehicles is to be reduced, and if we are to keep within reasonable bounds, the manpower allotted to maintenance and logistic support and the variety of weapons must be ruthlessly cut. Battles must be fought by teams of all arms.

No longer can we attempt to provide any single fighting arm with every type of equipment that it would need to fight alone. Our battle mobility must spring from the mobility of the infantryman on his feet, the tank on its tracks, and the support of artillery which is continually able to move to keep in range.

To command under these conditions we need the best signal communications that we can devise. At all levels commanders must be prepared to act with the greatest initiative within the long-term direction of their superiors. These two matters are complementary—intelligent initiative at the lower level cannot be exercised properly unless there is good long-term direction at the higher.

Finally, the need to approach these problems with real imagination must be stressed. To some people imagination in this context is an enthusiastic acceptance of any new ideas, however wild or unsound, as long as they are sufficiently unlike anything that has previously proved to be based on sound principles. Real military imagination is the capacity to follow one's ideas right through to the test of battle. Mobility, flexibility, maneuver—great military qualities—are but a means to an end—that end is battle under conditions favorable to us with the enemy at a disadvantage.

Much so-called imaginative thinking treats these qualities as an end in themselves. The formation that can maneuver with flexibility and mobility but cannot defeat the enemy in battle is of little military value. It would indeed be nice if land campaigns could be won without the beastly business of fighting, but this is not the way success is achieved.

The other factor which we sometimes forget is that for half the year it is dark;

the division between daylight and darkness varies between latitudes and seasons but that is the proportion. Formations which can maneuver efficiently in daylight on exercises may be less impressive in battle in the 24 hours of darkness and daylight.

Infantry Division

The infantry division, as we have conceived it, is the main fighting formation. *It must, therefore, be capable of sustained, powerful, offensive and defensive fighting under all conditions for long periods.* If this is to be achieved, each fighting arm must be capable of fulfilling to the limit the proper task of its own arm. Each must be ruthlessly pruned of nonessentials and be grouped into properly proportioned teams with the other fighting arms.

The infantry must be able to make the fullest use of the indestructible battle mobility of the properly supported infantry soldier, and must be prepared to hold ground in the defensive battle in order to hold the initiative and force the enemy into courses of action of our choosing. The holding of ground is a difficult task, but it might be well to remember that, in the days of conventional artillery bombardment, the man in a well-dug position was considered to have a considerable advantage over the man in the open. This advantage certainly is not going to be less in the era of nuclear weapons in the land battle.

If the division is to have punch in offensive and defensive operations, *armor must be integrated with the infantry* and, if a multiplicity of weapons is to be avoided, *the main responsibility for the destruction of enemy armor must be with the tank.*

In addition to providing nuclear fire support, artillery must be capable under all circumstances of producing close support to infantry and armor in offensive and defensive operations. It must be so integrated into the formation that the number and variety of indirect fire support weapons handled by the infantry itself is reduced to the absolute minimum.

The formation must be capable of dividing and redividing into self-contained groups of all arms. I believe very strongly that speed and flexibility of operations comes from teams of all arms trained together and accustomed to working with each other. This makes it most necessary to write these groups into the organization.

The divisional headquarters controls three brigades, each of one armored regiment and three infantry battalions; the artillery is so organized that one field artillery regiment (US battalion) is affiliated to each brigade; the medium artillery regiment has three batteries so that if it should be desirable, it can be split between the brigades.

The organization allows for further decentralization into groups, each of an infantry battalion, an armored squadron, and an artillery battery. It provides for the control of groups of whatever size when decentralized and provides for their command when concentrated. This formation proved successful in the trials conducted by the British Army of the Rhine.

The transport and equipment of this division will be air transportable with the exception of the three armored regiments and the self-propelled medium artillery regiment. The formation can be made suitable for worldwide tasks by adjusting the proportion of the heavy equipment, tanks, and medium artillery that is required for the theater concerned. The reduction of the variety of types of weapons and equipment is as much an asset in limited war as it is in global nuclear war.

There is a requirement for a formation which in the right circumstances can take advantage of a favorable situation created by the operations of the infantry division

and, even more, to operate rapidly to take advantage of the destruction, disruption of command, and confusion caused to the enemy by a nuclear fire plan. Such a force must be quick to start, powerful in action, and capable of great flexibility in the course of its operations. The only practicable basis for such a formation is the armored regiment using the fighting capacity, power of maneuver, and flexibility that comes from operations based on the skillful use of armor as the main striking arm and not in support of infantry. This formation must be equipped with a powerful fighting tank and must be unencumbered by transport.

Armored Division

Such a formation is bound to be specialized—it cannot be a general purpose formation. It will lose all its essential qualities if it is given all that is required for sustained fighting. Integrated into the formation must be the minimum armored infantry to assist the tanks in dealing with enemy bazookas and only sufficient artillery to enable it to deal quickly with minor centers of opposition which are interfering with its operations.

It is certain that an armored division of this type on occasions will be called on to carry out longer term operations than those for which it is organized. It will then be necessary to group under its command infantry and artillery according to the tasks allotted to it. We are planning to have one or two groups of possibly two infantry battalions and an artillery regiment available for allotment to the armored division when it is necessary.

It also might be practicable, when a deep thrust by armored divisions is contemplated, to put a brigade group from one of the infantry divisions under the command of the armored division; but the addition of further units as integral parts of the division will lead to a buildup which will again make the armored division a cumbersome formation incapable of carrying out its specialized task.

Logistic Support

One of the aims of the reorganization of fighting units is to simplify and reduce the logistic problem by decreasing the variety of weapons and rigorously restricting the number of vehicles. The advent of nuclear weapons, although unlikely to produce a major reduction in the number of guns required, will enable a very great reduction to be made in the amount of ammunition provided. Full account must be taken of these factors in the reorganization of the administrative services which must now be undertaken to match the reorganization of the fighting arms.

If we are to avoid the dangers of fixed lines of communication and the risk that we take in having large depots and maintenance areas, it is essential that we make full use of air transport for the logistic support of armies. The changeover from land to air transport for this task will take time and will be expensive. It will depend on the development of suitable aircraft of good load-carrying capacity, able to land and take off with a short run on grass. Limited numbers of load-carrying aircraft with the capacity of the helicopter to take off and land with no run also will be required for use in conditions where suitable landing areas cannot be found for more conventional aircraft.

Conclusion

The organization of formations is a matter of continuing evolution. Finality is never reached, but some stability is necessary if units and formations are to be able to organize and train for war. The study of the problem requires continuous imaginative thinking, but in all matters of doubt and speculation one thing is constant: a return to multiplicity of weapons and vast numbers of vehicles will be a sure road to disaster in battle.

Maintenance by Helicopter in the Nuclear War

Digested by the MILITARY REVIEW from a copyrighted article by Lieutenant Colonel W. A. Smallman in "The Royal Army Service Corps Review" (Great Britain) 1955.

'Sir,' said he, 'you have seen but a small part of what the mechanic sciences can perform. I have been long of opinion that, instead of the tardy conveyance of ships and chariots, man might use the swifter migration of wings, that the fields of air are open to knowledge, and that only ignorance and idleness need crawl upon the ground.'

—*Rasselas*, Samuel Johnson, 1759

HISTORY has amply recorded Hannibal's blazing enthusiasm for his elephants. No doubt, too, the Military Academy in Peiping echoed from time to time with heated argument as to the value of the firecracker as the ultimate weapon; just as the staff college at Quetta listened to many an exciting tale of the invincibility of the mule. In peace and war this thirst for military panaceas is unquenchable.

Indeed, the history of war is largely the history of a conflict not only between man and man, weapon and weapon, but between man's capacity on the one hand for devising and making use of obstacles and for providing the weapon power to protect them, and on the other hand his ability to find the means to go through them, around them, and over them, supported by the appropriate weapon power to cover that movement.

The heavy cavalry charge, the introduction of the steel-tipped arrow, the ponderously armored knight, gunpowder, the curious war engines of the Crusades, the airplane, tank, chemical and biological warfare, atom bomb, hydrogen bomb, the nameless cataclysm around the corner—all these are stages in the conflict. What makes the age we live in so much more significant is that man has reached a level of technical and scientific proficiency from which he can more readily appreciate and harness the full potential of new weapons, whereas in the past the immediate military possibilities in an invention such as gunpowder were clouded by an enthusiasm for bigger and noisier firecrackers.

Impact of Nuclear Weapons

The full impact of the nuclear weapon on the theory and practice of war is currently under evaluation in the field and the military laboratory. Certain points already are clear. The use of these weapons will dislocate ground communications and make it impossible at times to maintain forces by surface transport. It will enforce greater dispersion and add fresh administrative burdens in meeting that dispersion and in meeting the increased destruction caused to men and matériels.

We now face the need for a fresh examination of the strength, status, and roles of reserve forces and the major redeployment of the static organization in the homeland. Men must be prepared to live dispersed, concentrate to attack, and disperse in defense. The concept of the infantry holding ground and the armor exploiting success by deep penetration may well be reversed. Once more the big battalions pass into limbo.

Already, without the complications of enemy action, roads in Western Europe are too congested to allow movement to proceed freely; under the hammer blows of nuclear war they would become so choked as to deny the mobility which

alone will make the counterblow a practical operation of war. Administratively, all this points to economy in the means of movement, in the items to be moved, in the men to move them, and the men to use them. It points also to flexibility in administrative planning and in operations and control. Each theater of war will face a brief and bloody struggle for survival in an all-out attack and with only the men and the tools available at the time. Reinforcement and resupply from outside the theater may be possible but cannot be counted on. We are not sweeping on in the flood tide of victory as we were in 1945; we are back where we were in 1939, albeit better prepared and better equipped, but facing greater and infinitely more violent risks.

We must, therefore, husband our resources and reshape our army to meet these changing circumstances. Whether the services prefer to think of themselves as the tail or the backbone of this fighting machine, we must remember that while in the last analysis fighting troops at the right place and in the right numbers are the decisive factor, we must not be blind to the importance of retaining adequate administrative forces to get them there, keep them there, and move them away when the time comes.

A major part in effecting compromise between dispersion in defense and concentration to attack will be played by air supply, and in particular by the vertical lift aircraft, of which the helicopter has been selected for evaluation by the Joint Experimental Helicopter Unit. A thorough assessment of the part to be played by these machines must, of course, wait until the experimental unit has had time to put theory into practice. Extravagant claims have been made for vertical lift machines, and strong attacks have been made upon them as a potential means of maintenance. The truth lies somewhere in between, and our purpose is to examine the British requirement for such a machine, to relate it to the requirement for fixed-wing aircraft and parachute forces, to consider its tactical and administrative potentialities, to discuss briefly the rival claims of the army and the Royal Air Force to sponsor its use by the army, and to indulge in a little cautious crystal gazing.

The Helicopter

The characteristics, capabilities, and design of the vertical lift aircraft which will be in service ultimately are conjectural. At this moment it is the helicopter that best meets the army's requirement for a cargo machine capable of vertical lift, of hovering, and of carrying 10,000 pounds a radius of 150 miles at 150 knots. The convertiplane, an aircraft that takes off as a helicopter and converts into an autogiro or fixed-wing aircraft for forward flight—which may eventually replace the helicopter—is still in the experimental stage.

The helicopter can take off and land vertically and fly at any speed from zero up to its operating maximum. It can operate from small unprepared fields and overcome obstacles which might prevent ground movement, carry its load internally or externally, and load or unload without touching down. It can carry considerable overload at the expense of its vertical performance, and can fly horizontally in any direction, thus reducing its vulnerability to enemy air action. Under normal conditions it can land safely despite engine failure, the pilot has unrestricted visibility, and it can be fitted with flotation gear for amphibious operation.

As opposed to the advantages listed here, the helicopter has many disadvantages. Its fuel consumption is quite high, it has a restricted range, and its relatively slow flight make it vulnerable to

ground fire. The load must be carefully distributed in or on the machine, and in current models there is an undue tendency toward pilot fatigue. Finally, it has a very high maintenance factor compared to its equivalent in road transport and *the loss of a single helicopter means the loss of the cargo potential of many trucks.*

The helicopter is limited in operation by the fact that flying can be safely performed only when the pilot has visual reference to the horizon. This renders night flying extremely difficult. Also, the weightlifting capacity of the helicopter varies sensitively with changes in temperature and barometric pressure.

It can be seen, then, that while the helicopter has many advantages over road transport for daytime operations, its nighttime use will be restricted. These machines are expensive and difficult to maintain. In addition, because the supply of helicopters undoubtedly will be limited, there is bound to be conflict between their employment in the tactical and in the administrative role.

The Tactical Employment

In the tactical role the main point at issue seems to be the question of whether the helicopterborne soldier can achieve anything that the parachuted soldier cannot. Arising from this is the question as to whether or not the use of helicopters enhances the tactical mobility of reserves.

Undoubtedly, the helicopterist has advantages over the parachutist. The parachutist requires more specialized training but the helicopterborne soldier requires no more additional training than if he were being carried into battle in a conventional troop carrying vehicle. He lands less dispersed, can change his mind and go up again, has greater choice of landing places, lands as a tactical unit with his equipment ready, and the disadvantages of the heavy drop are avoided. The helicopter is taken to the soldier wherever he may be and, therefore, the dangerous concentration of a large number of aircraft on clearly seen airfields is avoided. Against that the range, speed, and mobility of the parachutist make it clear that while helicopterborne infantry may be invaluable in certain tactical roles for which air-transportable forces have always been desirable, there will yet remain tasks for the parachutist alone. The resupply of the parachuted force in carrying out these tasks is, however, a role well within the scope of the helicopter.

Apart from roles suitable also for parachuted troops, the helicopterist and the helicopter will take their place in all the phases of war. Possession of a suitable force of helicopters adapted for cargo and troop carrying will confer upon a commander a hitherto unattainable degree of tactical mobility. He will have in his grasp the means to hold his reserves widely dispersed and yet be able to concentrate them rapidly at the decisive moment in defense or in attack. In the assault across an obstacle, including the assault across beaches, the helicopter breaks away from the frontal assault with its array of heavy and complicated earthbound equipment, and allows the ground forces to free themselves from the shackles of bridge building, raft construction, road repairing, and beach clearance.

In pursuit it offers the opportunity to keep pace with the impetus of the enemy's retreat, to harry him, divide his forces, seize strategical points on his withdrawal routes, and generally to give pace and boldness to the action. In the withdrawal the evacuation of demolition parties and stay behind parties, and the use of helicopterborne rearguards will impose the maximum delay upon the enemy. Their value in the protection of open flanks and in reconnaissance must not be forgotten.

The Administrative Requirement

It is, however, in the field of administration that the helicopter will produce not only the most interesting study for service troops but also the most valuable contribution to the army as a whole. Again it is too early to judge just how great that contribution will be. Opinions range between those who say that the helicopter will replace 75 percent of second-line transport in a force and deliver almost all maintenance commodities from the base direct to units or subunits, and those of the overcautious who say that the helicopter soon will be shot out of the sky even if the money to provide those we need is made available. Once more the truth lies somewhere between these extremes and can be determined only by experiments and exercises and by participation in large-scale maneuvers. What is apparent at once is that whatever supply system is in use, an increasing share in meeting the additional administrative burdens imposed by nuclear war will be borne by the helicopter.

To meet the additional supply burdens imposed by nuclear warfare we must effect a considerable reduction in road transport and economize in manpower. But we must continue to have a guaranteed system of supply by one means or another.

It must be appreciated that our natural and civilized wish to provide administrative support on a generous scale is a serious handicap when facing an enemy who by being prepared to accept a far lower standard is able to deploy a greater proportion of his available manpower in contact and, at the same time, achieve a considerable reduction in the amount of traffic on his lines of communication. We must offset this handicap administratively by the use of air supply if we are to face up to the problem.

The rival claims of air supply by conventional aircraft and by helicopter are a subject for separate study. However, it has been established that the helicopter disposes of the need for airfields, demands less special care in loading, requires no parachute equipment, no salvage of special equipment, no fitting of roller runway, no dispatching crew, produces no scatter on the ground, and, therefore, no sorting out on arrival. It would appear that the helicopter is less vulnerable to ground and air attack, less sensitive to weather conditions, and should, upon the development of technical improvements, be more capable of operating by night than conventional aircraft.

One can see, therefore, that the helicopter best meets the conditions imposed, except where very considerable tonnages, great distances, and speed are involved. Thus as the helicopterist does not completely replace the parachutist so the helicopter does not completely replace the fixed-wing transport aircraft; but in both cases it provides a valuable new aid.

A similar situation is found to obtain if we examine the extent to which the helicopter can replace surface means of transport in the normal maintenance role. Although it provides a reliable substitute, there clearly can be no question of replacing all the road transport of a force by helicopter. "Handling transport" still will be required at depots and in forward areas.

What can be done is an examination of the extent to which a proportion of the divisional column might be replaced by helicopters or the extent to which specific links in the maintenance system might be entirely replaced by the helicopter. It must be remembered that a force of 100 cargo lift helicopters would give the same working lift as approximately 2,000 three-ton vehicles and, taking into account the increased manpower backing for maintenance that the helicopter will require as compared with the three-ton vehicle, the savings in men and road space alone are more than sig-

nificant. In considering how best to apply the potential lift certain assumptions must be made and certain questions spring to mind.

It must be assumed that the most that could be provided in peace would be a helicopter force capable of maintaining a corps of two or three divisions; any lesser number would be unrealistic and any greater number would be too costly. It must be assumed that in addition to the heavy cargo lift helicopter which we are considering here, there will be available in sufficient quantities, light helicopters with a payload of about 2,000 pounds for ambulance work, for detailed distribution of maintenance material and troop carrying in the forward areas, and also ultralight helicopters with a payload of about 500 pounds as a light ambulance and for command and control of cargo units.

At some later date it is reasonable to suppose that a much heavier cargo helicopter with a lift of some 20,000 pounds or more will be available for use in the communications zone for unloading ships and barges, heavy cargo carrying, constructional engineer work of all types, and for assistance in assault crossing of obstacles.

Replacement of Surface Transport

Finally, it must be assumed that the cargo helicopter force available to the army is permanently available and is not liable to be switched to some other task at short notice. Indeed, it must be in substitution for a given amount of surface transport in the order of battle and not an alternative means of maintenance. If the force commander fears that he may lose his helicopter lift at any time, then he will be driven to making alternative provision in his order of battle and the main manpower and vehicle savings will be lost.

The present system of maintenance between the base and the divisional area is by existing road, rail, and inland water networks. The result is that maintenance material moves along a line of communications which is liable to interruption by enemy action at almost any point. Movement is slow; indeed we have, as Field Marshal Bernard L. Montgomery has said, a 15-mile an hour maintenance system supporting a 500-mile an hour war. Sitting targets are presented at every stage.

Although experience in war has shown that the working of a surface line of communications can never be completely stopped, its temporary interruption can throw the force relying upon it into jeopardy, and the bill for route repair in terms of material and manpower can be crippling. Moreover, to meet the threat of interruption in this system we have evolved the series of maintenance areas which are, in fact, merely reserve stocks strategically placed under the commanders concerned. These maintenance areas themselves demand units and transport to permit them to function. It is an expensive system and one on which we can no longer rely. The maintenance areas are vulnerable; the routes to them are more than ever subject to interruption.

Here, indeed, is the place where the helicopter enters into its own. The haul from main support area to main base, if it is to be done by air, is performed best by the fixed-wing aircraft. Movement within the main base is achieved best by surface means because it is there that a communication complex normally will be found. The linear link forward to the fighting formations is where the need is greatest. The only limit to the use of the helicopter in this capacity is that of expense.

Casualty Evacuation

The speed, comfort, and ability to move directly from point of contact to the surgeon present the helicopter as the ideal means of casualty evacuation from for-

ward areas in war. The morale effect of seeing wounded men being lifted literally from the battle to the surgeon is very great upon those still engaging the enemy. It must be remembered, however, that experiences in Korea, Malaya, and East Africa are not related to conditions where enemy air activity is intense. It is doubtful whether it would be possible to operate helicopters with the same freedom in the face of enemy air superiority, particularly forward of advanced dressing stations. It is doubtful whether sufficient helicopters equipped as ambulances could be provided for more than the seriously wounded in urgent need of surgical attention. The balance of casualties would be brought back as far as possible by use of empty helicopters on their way back to rear areas.

From this it would follow that the evacuation by helicopter of other than high priority cases—which would be taken care of by specially equipped machines—would be an uncertain matter and that the framework of the existing system for the evacuation of casualties by surface means would have to be retained.

Reinforcements

The movement of individual reserves or reinforcements by helicopter is as feasible as the move of reserve formations. The rate of reinforcement to a division forward of the army maintenance area is in the order of 140 per day. At present, men go from the reinforcement holding unit in the army area direct to their appropriate divisional holding unit, except in the case of reinforcements for corps troop units who go to a corps reception camp. As far as our present deliberations are concerned they may be considered as any other item of maintenance.

They must be moved and moved quickly and the best means of movement to the forward area would appear to be by helicopter and provision should be made in calculating the cargo helicopter lift for them to be moved by that means.

Similarly, the movement of reserve units and formations over limited distances to or from areas ill provided with airfields is a task which helicopters can perform with speed, safety, and economy. Undoubtedly, the heavy troop carrying aircraft is a more satisfactory means of transport over longer distances, provided suitable airfields can be made available.

To move a brigade group on a helicopter basis, and with transport limited to jeeps and trailers or unladen one-ton vehicles, would require 100 sorties by the medium cargo lift helicopter and would entail the heavier vehicles and guns moving by road. But as more powerful helicopters come into service there is no reason why air-portable formations should not be moved in their entirety by helicopter.

Under certain conditions reinforcements and reserves moved in this way might be landed directly into the battle or on to reserve positions. In any case, long approach marches on foot or by hastily assembled transport will be avoided and men will come to battle less fatigued and in better spirit.

A limiting factor to be borne in mind here is that unless a force of helicopters is specially available for this task, their use will be at the expense of the maintenance by helicopter of a proportion of the main force. The dislocation caused must be balanced against the advantages accruing from the more rapid movement of reserves.

Maintenance System

The British system of maintenance is, as has already been implied, now undergoing close study. The shape of fighting formations is changing, and there is the urge to streamline everywhere and to remove all redundant transport from the forward area. In addition, we are com-

mitted in Europe to fighting an integrated battle along with United States forces, the Belgians, the French, the Netherlands forces, and others, the majority of whom have adopted the continental system of maintenance in which corps headquarters has no administrative function other than toward its corps troop units.

All these factors have made it necessary to reconsider our adherence to the principle that administration is a function of command and that at all levels the commander must, therefore, be responsible for the administration of his forces.

The range, speed, and carrying capacity of the helicopter have brought the resources of the army maintenance area to within much less than a day's journey of the division and have made insistence upon reserve stocks of all essential commodities under the corps commander no longer as imperative as in the days of the surface transport system. It is clear that the present system can be distinctly modified to make the best use of this new medium.

In the railhead area we will find that subdepots will be more widely dispersed to meet the nuclear threat. Collection and exchange of commodities in this area will be simplified and speeded up by the use of helicopters, particularly if the railheads are widely separated one from another and not located in a communications complex.

Further forward in the corps area we have seen how, given confidence in the helicopter's ability to fly with as great a degree of reliability as was placed upon road transport, the corps maintenance area could be dispensed with except for a small distributing organization to handle the requirements of corps troop units. Responsibility for the maintenance of forward divisions might then pass to an augmented staff at army headquarters and be delegated again to corps headquarters only for a particular phase of operations where a more forward focus of control was required.

There is a body of opinion which contends that the helicopter will be able to fly direct to unit and subunit localities and deliver in unit and subunit bulk. This may well be so, but it will require a practical test in the field. Similarly, it is contended that the use of the helicopter will permit radical reductions in divisional second-line holdings and in divisional second-line transport. These things, too, will require practical testing before any firm conclusion can be reached.

What is more attractive at this stage is the suggestion that helicopters normally should work to an area behind the division, perhaps in the divisional administrative area, similar to the army supply point area as set up under the continental system. From that area divisions should draw and break bulk in the usual way. This would retain the flexibility of the present system within the division but at the same time take full advantage of the further flexibility provided by the use of helicopters in the corps area. There is no reason why certain items such as urgently required bulk stores, POL, or ammunition should not bypass the army supply point and be delivered direct to major unit locations since that merely would be a practical exploitation of this flexibility. What is to be avoided is the runaway feeling that the helicopter can sweep the transport board at the forward end of the battle.

Helicopter Control

Thus we can see in this cursory examination that there is a place for the helicopter with the army, not only as a communication aircraft, but as a load carrier—capable of replacing more than its own worth in transport and manpower—provided that it is placed under the control of the force commander concerned. It is contended that there must be central con-

trol because numbers will be restricted and priorities will have to be allotted.

There must be no specialist helicopters and no splintering of the helicopter force. There must be a high standard of handling and maintenance, and there will be occasions when all helicopter operations may have to be in support of the Royal Air Force. Further, there can be no indiscriminate and uncontrolled flying in the combat zone; the only way to control flying is for the Royal Air Force to control all aircraft.

On the other hand, those who support control by the army maintain that there can be no economy of transport and manpower resulting from centralized control because a commander must be assured of his maintenance system before he will surrender his transport backing. Against a nuclear background it will not be practicable for an army to depend upon a nonelastic maintenance system. The primary purpose is to move supplies, not troops. They contend, too, that whereas the fixed-wing aircraft is rightly part of a centralized system dependent upon proper airfields, the helicopter with its capacity for working without any form of airfield lends itself to a more flexible, decentralized control. Again, commanders will not deny themselves reserve holdings nor will they surrender second-line transport unless they can be sure that their helicopter resources will not be snatched away at some inopportune moment.

Conclusion

In conclusion it can be said that Force equals Mass times Velocity squared and the biggest increment to the strength of a force comes from increasing its velocity. We have within our grasp the means to increase the speed and the range of our maintenance movement. Above all, we have the opportunity to break the shackles of surface transport which threaten to bring us to a standstill and to weld these new machines and organizations into a maintenance system appropriate to the nuclear age.

The Purple Testament

Digested by the MILITARY REVIEW from an article by Major General A. G. Wilson in the "Australian Army Journal" July 1956.

THERE is no dispute as to the ultimate object of war. It is for one nation to impose its will upon another nation.

The ultimate aim in war is to force the enemy to abandon the purpose for which he resorted to arms and to conclude peace on satisfactory terms. It is *not* the object of war but the ways of attaining the object that are contentious.

A nation endeavors to achieve its aim by employing part or all of the means of persuasion at its command. These means include diplomacy, economic influence applied in the form of financial or commercial restrictions on its opponents or of assistance to its allies, and in the last resort the use of armed forces at sea, by land, and in the air. Or to put it another way:

War is essentially a relationship between two powers in which one endeavors to force the other to submit to its will by the application of some form of pressure. This pressure may take on economic form, or it may take the form of possible starvation, or the more direct form of bayonets and bullets, but where vital issues are at stake it must be severe enough to throttle the national life.

Economic Persuasion

The application of economic persuasion dates back to antiquity. The Roman legions ravaged the land to make it untenable for their enemies. A scorched earth policy was pursued by Wellington when he retreated to the lines of Torres Vedras, and by the Russians on a much larger scale in 1812 when the inhospitality of a western Russia, scorched and then frozen, forced the French to retreat disastrously to their homeland; and nation to nation—the blockade of Germany in World War I by the navy. In World War II Great Britain was almost forced to her knees by the German sea and air attacks on her shipping. In one month alone—November 1942—more than 600,000 tons of Allied shipping were sunk by submarine attack. In similar manner the economic blockade and bombardment of Germany and her satellites during 1939-45 contributed materially to their defeat.

Propaganda

Propaganda as a means of persuasion came into its own with the introduction of radio. By such means it was practicable to disseminate quickly to a large listening public only the information it was considered advisable for them to receive. The "thing to do" in England during World War II was to listen to the radio news—especially the "9 o'clock"—so much so that it became one of the revue jokes of the day. Who could ever forget those stirring wartime broadcasts by Winston Churchill.

On the other hand, there were infamous enemy propagandists like Lord Haw-Haw and Tokyo Rose whose broadcasts, while at times most humorous, were not particularly effective.

As an example of how much notice was taken of broadcasts even as early as 1940—and of how insidious rumors can be—in September of that year a rumor was passed around the Australian Force on Salisbury Plain that Lord Haw-Haw had broadcast that the 18th Australian Infantry Brigade was due to leave England for the Middle East shortly and that it would never reach its destination. An officer from the War Office was given the special mission of finding the source of the rumor.

It was traced to a unit cook who, however, stated that a friend had heard the broadcast. The "friend," of course, knew nothing of it.

Fear

Persuasion by massacre is an age-old method. The Romans, Mongols, Huns, and Turks—most nations at sometime or other practiced it. Seneca in his day wrote: "We check manslaughter and isolated murders; but what of war and the much-vaunted crime of slaughtering whole peoples?"

There came a time when the massacre of civilian populations became relatively unpopular until eventually there was international agreement regarding the waging of war. To quote from the *Manual of Military Law*, Chapter XIV, "The Laws and Usages of War on Land":

In antiquity and in the earlier part of the Middle Ages no such rules of warfare existed; the practice of warfare was unsparingly cruel and the discretion of the commanders was legally in no way limited. During the latter part of the Middle Ages, however, the influences of Christianity as well as chivalry made themselves felt, and gradually the practice of war became less savage.

Most of the "laws of war" were formulated and agreed to in the early part of this century. It is interesting to view some of them in the light of subsequent events. For example:

The Hague Convention, 1907, "Relative to the Opening of Hostilities"—Remember Pearl Harbor, December 1941?

The Hague Declaration, 1907, "Pro-

hibiting the Discharge of Projectiles and Explosions From Balloons"—Remember the bombing of Rotterdam and of London in 1940?

The Geneva Convention, 1929, "Relative to the Treatment of Prisoners of War"—Remember the Bataan Death March?

The following sentence appears in a book, *The Memoirs of Hadrian*, by Marguerite Yourcenar: "The stupid, cruel, and obscene game would go on, and the human species in growing old would doubtless add new refinements of horror." The words referred to war and were ascribed to a man who lived in A.D. 76-138.

The latest "refinement of horror" was introduced on 6 August 1945 with the dropping of a "nominal atom bomb" on Hiroshima which caused the death of 70,000 and injured a similar number. It is said that the explosions at Hiroshima and at Nagasaki hastened the armistice with Japan. Whatever the general political effect of the dropping of the bombs, it was "persuasion by fear."

The destruction of either town had not, as far as I am aware, any military significance. It is not my intention to go into the rights and wrongs of the matter. Suffice it to say that the bombs *were* dropped and that their release was *not* related to an immediate *military* aim such as the invasion of Japan.

It would appear quite clear that in a future "hot" war atomic missiles will be used by the military forces in the field. As Field Marshal Bernard L. Montgomery has said: "In fact, we have reached the point of no return as regards the use of atomic and thermonuclear weapons in a hot war."

But will such weapons be used against "undefended towns, villages, dwellings, or buildings"? In my opinion there is "no return" here also. Even in our own writings on atomic warfare, included in likely targets for atomic attack are support areas and "civilian populations with the aim of disorganizing the system of civil administration upon which fighting forces rely for most essential services." This refers to targets the destruction of which would have a direct effect on military operations. But what is there to prevent the extension of the use of atom bombs to the wider field of the political objective of enforcing the will of one nation upon another?

What happened in World War II? Were targets of bombardment, especially from the air, restricted to those which had a direct effect on military operations? I recall being in England when the first 1,000-plane raid on Germany took place. Aircraft were gathered from far and wide. I understood that any "kite" that could fly the distance and drop a bomb was used. The propaganda value was great, not only in raising the morale of our own people, but also in lowering that of the enemy.

Was it not claimed at one time that persuasion by fear of bombing would make the enemy sue for peace? The exponents of this theory were, of course, wrong, as they always will be. No thoughtful person will contend that wars can be won by one service alone.

Disorganization

It was bad enough during World War II when London was being bombed in the winter of 1940-41. Much time was lost due to disrupted communications, being in air raid shelters, and leaving early in the afternoon to get home before the night air raids began. How much worse it must have been in many German cities. How much more confusion there would have been if atom bombs had been used. Imagine the effect of a thermonuclear bomb dropped without warning on the center of London at 1 p.m. on a weekday!

Atomic Effects

It is not the intention here to go into the details of the effects of atom bombs, both fission and fusion, which already have been covered adequately. However, remem-

ber the casualties caused at Hiroshima —70,000 killed and as many injured— and Nagasaki—36,000 killed and 40,000 wounded by nominal atom bombs (20 kilotons), one of which was dropped on each city.

In exercises without troops (and, of course, without bombs) we glibly talk of dropping a 20-kiloton or a 50-kiloton bomb. A template is placed on a chart to show the area affected by the explosion.

Taking a nominal bomb being burst at medium height to produce the maximum number of casualties, anyone in a trench with earth cover (18 inches thick) within 1,000 yards of ground zero might become a casualty. Or put it another way, under similar conditions, if the concentration of troops on the ground is four per 5,000 square yards, the number of fatal casualties would be about 220. Let us be generous to the bomb and say it could possibly eliminate one major unit—one infantry battalion, 700 men.

Every time the dropping of a 20-kiloton bomb is mentioned I visualize Hiroshima as I saw it early in 1946—a flattened city. The only buildings standing within a reasonable distance of ground zero were of steel and concrete, but they were gutted and awry as though "pushed about" by some naughty child. I recall the utter devastation. I remember that 70,000 people were killed by the explosion. I compare this result with that hypothesized against troops in the field. Surely the persuasion by fear and by disorganization by dropping atom bombs on cities is going to further the aim of a nation at war more than by using such weapons against armies in the field—a horrible thought which history shows cannot be discarded.

World War II demonstrated clearly that "open cities" no longer exist and that when a nation now goes to war every man, woman, and child in it is involved in some way or other.

Churchill in his famous speech in March 1955 stated: "The hydrogen bomb has placed mankind in a situation both measureless and laden with doom. There is no defense—no absolute defense—against the hydrogen bomb."

It has been reported that Lord Russell said that five hydrogen bombs could knock Great Britain out of a war.

But where is all this argument leading? These conclusions follow:

1. The effect of an atom or thermonuclear bomb on a city is immensely greater than on troops in the field.

2. The aim of war usually can be furthered more by employing such missiles against cities than troops.

3. A great advantage could be gained by hitting the enemy to reduce his power of retaliation.

Total War

In a speech in May 1917, Woodrow Wilson said: "It is not an army that we must train for war; it is a nation."

Such a dictum must apply more these days than it did then. Yet we still concentrate only on the training of armed forces for war.

The term "total war" was coined in World War I. World War II confirmed the expression and world war III will, without a doubt, endorse this confirmation.

A Dark Picture

It is June 1960—a bright, warm, early summer's day in London. The miracle of spring has just been completed and the earth is gay with its newly acquired coat of many colors. In spite of the joy in the air, the gentlemen wearing the bowler hats and carrying the tightly rolled umbrellas look worried. Those traveling by bus or underground are scanning their morning papers. International tension has risen to fever point. Parliament is meeting this day to consider what emergency measures are to be taken. Whoosh! ! There are five of them out of the blue without even the sound of an airplane engine—one each on

London, Liverpool, Hull, Glasgow, and Birmingham.

Shortly afterward there is a swarm of light bombers with the obvious objective of destroying our retaliation force, including fighters. Although the enemy does terrific damage, sufficient bombers remain to carry our missiles to Communist cities. The "Battle of Britain" is being fought again, but this time a decision is reached within a matter of days. Our fighter aircraft evenly matches that of the enemy who is at a disadvantage owing to the distance from his bases.

The surprising thing is that there is no Communist blitz against our forces along the Elbe. From intelligence sources it is ascertained that had the Communists succeeded in blasting our fighter force from the sky, an airborne invasion of England would have taken place within a week of the thermonuclear attack on our cities.

And what is the position on D plus 3? In England there is chaos. There is no question of the Lion licking his wounds. With the destruction of Parliament and the means of government (plans prepared in 1956 included the dispersion of departments into the country, but the attack came before this was done) the country had become completely disorganized. Fortunately, home forces general headquarters was tucked away in a remote spot in the country and survived the attack. The commander in chief declared martial law and tried to reinstate some type of order. For the armed forces he laid down that priorities of tasks were:

1. Destruction of any enemy forces which might invade Great Britain.
2. Restoration of law and order.
3. Succor of the survivors of the enemy's attack.

In the meantime, what was happening to our troops on the Elbe? The only enemy attack was by propaganda—and insidious it was, too. Information on what had happened in Great Britain was passed to the troops by every available means—broadcasts, news sheets, leaflets, and, most important of all, fifth column rumors. There was no need to exaggerate the frightfulness of what had happened. There was bewilderment, great anger, horror, and, above all, anxiety for families and friends. The alternatives seemed to be either to go "berserk" and kill as many enemy as practicable before being killed oneself, or to return home to help succor the remaining few.

To stay still was almost unbearable.

That might be the picture; but there are hundreds of variations of it. However, whatever its shape might be, we can rest assured that the next war will be *total* and that every man, woman, and child will be involved.

Preparations

I shudder when I hear officers refer to the forecasts of the devastating effects of the introduction of the crossbow and of gunpowder, and compare such forecasts with those in respect to thermonuclear weapons. There is *no* comparison. Why try to belittle the effects of this true weapon of mass destruction. It is better to know the worst and to prepare for it as best we can. The United States hydrogen bomb exploded in 1954 contaminated 7,000 square miles—and that was only a test explosion.

Someone said to me the other day: "If an enemy dropped an atom bomb on Sydney what do you think the people of Melbourne and Brisbane would do?"

I leave it to you to answer the question.

In a pamphlet published in November 1954, the Honorable W. C. Wentworth, member of Parliament, stated:

A Pearl Harbor upon a world scale is by no means inconceivable. In such cases the defense preparations made after the onset of hostilities would be virtually negligible; it would be what is done before the attacks which would count.

I could not agree more.

The training and preparation of a nation for defense in war involves a completely new concept. In England the present plan is to raise a Mobile Defense Corps of 36 rescue and 12 fire battalions. Other assistance, especially from the technical arms and services of the armed forces, would be required.

An article in the *Australian Army Journal*, in April 1956, entitled, "The Army and Civil Defense," states:

> *If, however, the dangers were as apparent as in the United Kingdom a Mobile Defense Column would be a readily available solution to this problem as a surprise attack would prevent a civil force being trained in time, and it had been proved that such a force of the numbers, training, and mobility required, cannot be raised in peacetime.*

What an admission to have to make.

Field Marshal Montgomery in his article on world war III stated: "Indeed, there is no sound civil defense organization in the national territory of any NATO nation as far as I know."

It stands to reason that if there were to be a third world war, civil defense would be as important as military defense. Its importance would be such that after the nuclear attack was delivered, any of the armed forces which could be spared from engaging actively the enemy's navy, army, and air force would be used on civil defense tasks. This means that all troops will have to be trained in rescue work and similar duties. The body which controls the defense preparations of a country will need to contain representatives, not only of the three services and supply, but of all other instrumentalities involved directly in the control of the country in time of war. It is only by thinking afresh and by planning more or less *ab initio* that we can hope to be prepared for the next war.

Conclusions

In a life and death struggle between nations, atomic and thermonuclear weapons probably will be used.

Atomic and thermonuclear weapons are so much more effective against concentrations of people and materials than against troops in the field that priority for their use probably would be given to targets such as centers of population, of industry, of trade, and of communications.

The next war will be *total* in all its aspects and will involve every man, woman, and child.

Preparations and training for the next war, which we hope will never come, must be national and must be undertaken accordingly.

The armed forces must be fitted into the over-all pattern of defense and not be considered separately.

Epilogue

For modern civilization, or perhaps for mankind itself, to survive there is only one real solution to the problem—the abolition of the "last resort" means of persuasion, the use of armed forces at sea, by land, and in the air.

Military Standardization and Its Application to NATO

Digested by the MILITARY REVIEW from an article by Colonel R. T. Bennett in the "Canadian Army Journal" July 1956.

ALTHOUGH it is acknowledged that standardization is a dull subject, it is certainly not a new problem. The following extract from a commission signed by Charles I in June 1631 on the subject of standardizing arms and armor indicates that it was plaguing our ancestors even then, over 300 years ago:

And because we are credibly given to understand that the often and continual altering and changing of the fashion of armes and armours, some countrys and parts of the Kingdome having armours of one fashion, and some of another, do put many of our subjects to a great and unnecessary charge, and more than need requireth; for the avoiding whereof, our will and pleasure is, and we doe hereby appoint and command, that hereafter there shall be put one uniform fashion of armours of the said common and trayned bands throughout our said Kingdome of England.

To standardize is simply to make matters—*matériel* or *nonmatériel*—conform to a standard pattern. There is no validity whatsoever in standardization as an end in itself, and to adopt such an end would be a denial of all progress. Thus from the military point of view it is only necessary to standardize when to do so will result clearly in an improvement in the efficiency of the fighting services.

Fields of Activity

The aim of NATO military standardization is "to enable the NATO forces to operate together in the most effective manner." In the furtherance of this aim, there are two distinct fields of activity in which standardization is considered: the *nonmatériel* field covering procedures, tactics, techniques, and terminology; and the *matériel* field covering equipment.

In the *nonmatériel* field it is quite clear that the adoption by all NATO nations of similar operating procedures, similar tactics, and similar terminology is absolutely essential if our individual forces are to be able to fight effectively side by side. For this reason it is the declared NATO policy that in the *nonmatériel* field the maximum practical degree of standardization should be achieved so that all forces of the alliance can operate together effectively. Considerable progress already has been achieved along these lines.

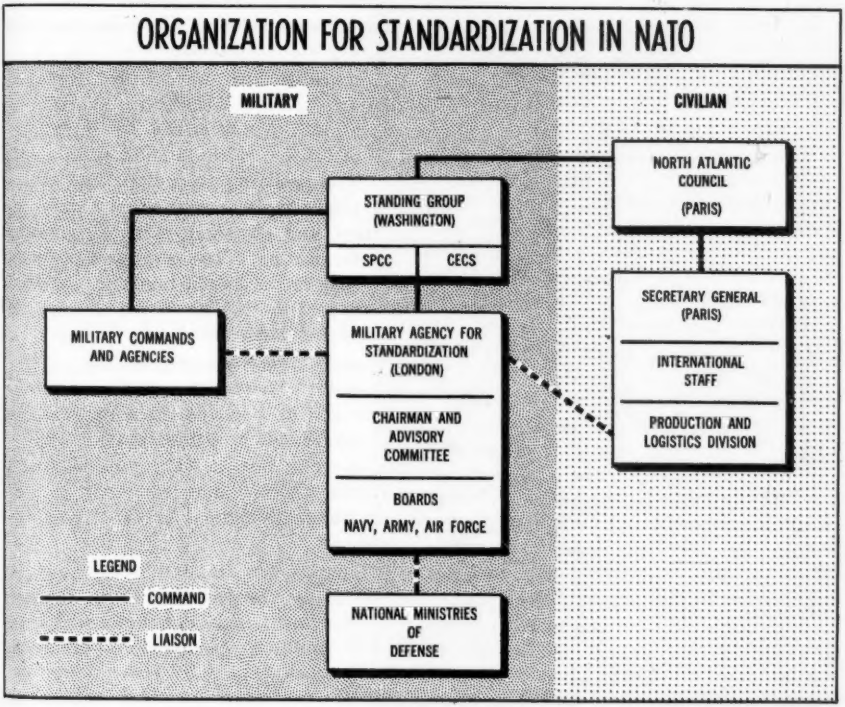
In the *matériel* field the problem is not quite so simple. From the point of view of the idealist it is easy to say that allied forces equipped with common weapons and sustained by common supplies are more likely to fight effectively together than forces using dissimilar equipment. However, this contention entirely ignores the fact that in these days of total war it is the nations which fight and not merely the armed services. Thus it is necessary to take into consideration national requirements, national idiosyncrasies, and national industrial practices before it is possible to standardize any given article of equipment.

Take, for example, a relatively simple item such as the ubiquitous jeep. The American automobile industry is geared to produce this vehicle in quantity. But supposing that for reasons of national economy and employment policy the British and French Governments decide to produce their own jeeps. Inasmuch as the industrial practices of all three countries vary widely, would it be wise or practicable to standardize and adopt a NATO jeep which would require the retooling of per-

haps General Motors, Renault, or Austin? Obviously not.

For this reason there now are, and will continue to be (much to the despair of the idealist), American jeeps designed to run on the right side of the road and British jeeps designed to run on the left of the road. Here, then, is a simple example of why—for reasons of domestic employment policy coupled with domestic industrial practices—it is not always possible to standardize even a comparatively simple article of military equipment.

There is another and, perhaps, more difficult hazard standing in the way of *matériel* standardization. This is the security of individual nations. It is easy to say that in the field of new developments —particularly armament development— there should be no difficulty in establishing military characteristics and common specification for the manufacture of entirely new articles of equipment. Theoretically, this is correct, but in practice it does not work that way because most new developments are conceived originally as items specifically designed for the defense of national sovereignty and territory.



Security Laws

Few countries are permitted by their laws to disclose information which would prejudice national defense should it get into the hands of the wrong people. Con-

sequently, many modern developments are excluded from the field of NATO standardization by the security laws of the originating country. It may be contended that such caution among friends is exaggerated, but this is not so. No duly elected democratic government possibly can guarantee to its electorate that national security is as good as can be devised, if that government permits defense secrets to be passed beyond the limits within which the national security authorities can themselves physically and effectively control security.

It is self-evident that the ideal solution upon which nobody can agree is almost invariably the enemy of an adequate solution which can be accepted by all. Within this latter area we find such items as the standardization of fuels and lubricants, components, adapters, and ammunition. If standardized, these do much to make it possible for NATO forces to work effectively together.

Thus in the *nonmatériel* (or procedural) field the NATO policy is to achieve the maximum practical degree of standardization, while in the *matériel* field it is the policy to achieve the maximum practical degree of standardization while recognizing the many intractable problems which militate against complete success.

The military Standing Group of NATO is responsible for formulating the military policy on standardization as a guide to the 15 countries of the alliance, military commands, and agencies. To do this the Standing Group has established the Standardization Policy and Coordination Committee (SPCC) drawn from the Washington staffs of the member nations (France, the United Kingdom, and the United States), together with a Canadian representative.

This committee advises the Standing Group on the policy, procedures, and organization required for standardization, and also exercises certain coordinating functions between the agencies and commands concerned with standardization. The Communications-Electronics Coordination Section (CECS) is of equal importance but confines its work to formulating the electronic characteristics of items of communication equipment. Of the external Standing Group agencies, the Military Agency for Standardization (MAS) in London is the principal one concerned with military standardization.

In parallel with the military organization is a civil establishment functioning under the direction of the Secretary General of NATO which, in addition to a vast array of political, economic, and financial problems, is concerned with the production and supply aspects of military standardization. The primary agency in this case is the Production and Logistics Division of the NATO International Staff with whom MAS has a close liaison.

Finally, there are the NATO military commands which are the chief beneficiaries of standardization and the main breeding ground for new proposals. MAS is authorized to enter into direct negotiations with all these agencies and commands, as well as with all ministries of defense in the alliance.

Proposals for standardization may be initiated by the North Atlantic Council, the Standing Group, national authorities, NATO military commanders, or MAS. Those which have a NATO-wide application are considered by MAS while those made by groups of countries within NATO —such as America, Great Britain, and Canada (ABC) or the Western European Union (WEU)—are processed by the countries concerned. In this latter case, provided national security policies allow, these agreements then may be filed with MAS who will invite nonsignatory nations to subscribe to them.

When final NATO-wide agreement on any subject or item is reached, MAS pro-

mulgates it in the form of a Standardization Agreement (STANAG) and it is, of course, the duty of the supreme commanders to inform MAS subsequently of the effectiveness of the agreement under operational or exercise conditions.

The work is slow, laborious, and sometimes frustrating, as indeed it is bound to be when you consider that within NATO there are 15 nations, two supreme commands, the channel committee, and a large number of subordinate commands all of whom have to be consulted. The task, however, is not unrewarding, for it has the great merit of being essential at best, and at the worst extremely useful.

Perhaps some may argue that the entire business is so fraught with difficulties that it is hardly worth the effort presently being put into it. Looking back some six years to the practical beginning of the Western Alliance, it is all too evident what enormous strides have been made. Military maneuvers are conducted today which would have been quite impracticable in the early days before procedures and tactics had been agreed upon—or standardized. And in the *matériel* field, tribute must be paid to the large measure of effective standardization which has grown out of the North American military aid program.

All this should give the member countries of the NATO alliance the fortitude to press on with a humble but useful task, realizing that the policy for achieving the aim of military standardization is severely practical, but that the ideal solution often is impossible of attainment.

Logistic Problems in an Era of Wholesale Motorization

Digested by the MILITARY REVIEW from a copyrighted article by Major General G. J. Le Fèvre de Montigny in "Revue Militaire Générale" (France) January 1957.

The Revue Militaire Générale *is a trilanguage monthly magazine which began publication in 1956, and already has proved itself an outstanding publication in its field. The sponsoring committee of the* Revue Militaire Générale *lists most of the major military leaders in NATO and represents 15 Western Nations. The editor in chief of the new publication is French Général d'Armée M. Carpentier.—Editor.*

IN ORDER to utilize to the utmost the result of a successful breakthrough and to shorten the duration of World War II as much as possible, the Allied military authorities had proceeded to increase to the maximum the mobility of the forces by means of large-scale motorization and mechanization.

An extensive organization was to meet, with all available means of modern equipment, the enormous POL requirements and the ever-increasing requirements for engineer equipment and ammunition. Enormous demands were made not only on required movement capacity, but also on transport organization and traffic control in order to keep pace with the operations.

With no intention of minimizing the expert knowledge or the zeal and devotion which the logistic headquarters and establishments displayed in the fulfillment of their mission, it should be admitted that they did not and could not fully succeed in that task. As a result, the Allied offensive toward the Rhine came to a standstill, since the progress of any operation depends on adequate provision of ammunition, gasoline, and other supplies.

Owing to Allied air supremacy the enemy was able to inflict only small losses on transport, so that—from this point of view—circumstances were most favorable.

Additionally, the efficiently organized

German forces were unable to take countermeasures in the period following the invasion, as at that moment almost all bridges over the Seine were destroyed. This clearly manifested how modern motorized and mechanized army units and their logistic support are tied to the road network, and how the more vulnerable points in the road system—notably bridges—can be of predominant importance.

Finally, unlike before, modern matériel proved more vulnerable and sensitive, resulting in increased demands on maintenance and repair. Due to the combination of these circumstances, more and more personnel had to be committed for logistic support so that in the end not even 50 percent of the actual strength could be used for combat.

It was a clear case of disproportion.

It can be contended that the demands made on logistic support as a result of wholesale motorization and mechanization are such that the danger of this support being unable to follow the pace of the operations is a very real one. Further, such motorization and mechanization requires a comparatively large number of personnel employed in logistic support at the expense of the numerical strength of the combat force; this leads to support being tied to the road system, in general, and to the vulnerable points thereof, in particular.

These factors should be kept clearly in mind for the future. They are bound to make themselves seriously felt in a future war. Atomic warfare certainly will add to these difficulties.

Atomic Effect

The problem as to the measure in which a possible atomic war will influence strategy, tactics, and organization, as well as the weapons to be used, is a matter of serious study in most countries and in interallied military quarters. The often divergent opinions are in accord in one respect—that future organizations must be simple and flexible and that they must have adequate mobility, great striking power, and great firepower.

The conclusion would seem justified that tanks and mechanized vehicles will retain their places in any future organization and that, for the sake of required flexibility and mobility, motorization will not decrease. In other words, the difficulties encountered in the last war with regard to logistic support will remain undiminished.

The destructive power of the atom bomb on depots and transport units will surpass many times that of former weapons. Radioactivity will render movement through certain areas more hazardous than ever, whereas the vulnerable points in the road network will gain in importance. Considering that atomic warfare in particular calls for swift reactions, the question arises whether and to what extent the current logistic system can remain unchanged or what changes will have to be brought about accordingly, and, moreover, what modern means can be applied to face the anticipated difficulties.

It is certain that the supply system of World War II was burdened the most, and often unnecessarily, by the wide variety of articles required. If, for instance, the number of types of ammunition, types of vehicles and interchangeable parts, and the various kinds of weapons could be limited, this would appreciably diminish the worries of the responsible logistical authorities.

The necessity for paying separate attention to this self-evident aspect is questionable, the more so because we realize that only gradual improvement would be practicable. Existing armament and equipment, which still serve their purpose and for which countries have suffered great financial sacrifices, are not to be abandoned, with a view to *standardization*, without serious consideration. However, this is a point which should be considered

in modifying an organization or in procuring new weapons and equipment. From the national viewpoint it would simplify the responsibility of each country for its own logistic support; internationally it would increase the possibilities of "cross-servicing" and thereby increase the combat effectiveness of the appropriate units.

Standardization of matériel and equipment contributes toward limitation of the volume of logistic support and consequently to a greater flexibility.

Depot System

The prevailing logistic system is based on service from a number of major depots, each of which holds goods of one and the same class only. In the event that one of these depots is destroyed, the supply of this class of goods in a large sector is made impossible for sometime, resulting in operations coming to a standstill. From this point of view, the vast depots certainly form paying atomic targets. It may be readily argued that it would be better to proceed to dispersal in width and depth, as in the combat zone. Logistic supply cannot remain based exclusively on the depot system which offers such vulnerable targets. Goods of one class should be dispersed so as to diminish the consequences of the loss of a depot.

Dispersal of all depots would lead to a very large number of minor depots which, in return, would impose higher demands on movement capacity, traffic control and administration, and adversely affect the desired flexibility and reduction of personnel required for logistic support. Therefore, the solution will have to be sought along the lines of formation of depots for various classes of goods. The vulnerability of such a depot may not be solved but it does meet the effect which the loss of a depot would have on operations. In this way, depots will constitute less profitable and, consequently, less attractive atomic objectives. Also in this light the significance of the standardization referred to here clearly manifests itself.

Petroleum supply forms, perhaps, one of the most vulnerable points in modern warfare. When the motor fuel supply fails, movements of any importance are no longer possible. This makes itself felt both in the operational and in the logistic sectors. Movement capacity—including that of the civilian sector—is limited and tied completely to the road network. It is not surprising, therefore, that special attention has been paid to this aspect.

During the last World War excellent experience was obtained with the use of pipelines. Laid largely underground, the system is proportionately less vulnerable. By proper use of branch lines it will be possible for a centralized control board to fill the requirements by division of supplies in the event of the loss of one or even more vulnerable supply points. The system requires fewer personnel and meets many difficulties incidental to surface transport. These major advantages justify the investment of large amounts in a pipeline system prepared in peacetime.

Commercial operations are turning more and more to the use of pipelines in peacetime. It would seem that proper cooperation in this field may lead to good results and guarantee a more profitable return on funds invested in peacetime.

However much the above suggestions may contribute toward greater flexibility and reduction of the cumbersomeness of logistic support, the fact remains that such support is tied to the vulnerable road network; its continuous operation is by no means guaranteed.

Difficulties may be diminished, but a solution has not been found. The question again arises as to whether logistic supply can be based *exclusively* on the depot system with its vulnerable targets, its dependence on the road system, and its lesser flexibility.

Why not, as in the combat area where every commander has learned to maintain a certain reserve, maintain a central reserve in the logistic sector which can be readily committed as required by the operations or in places where the enemy has succeeded in harming logistic support? But even in cases in which such reserves are available, supply as a rule will take place via the existing channels and be required to use a damaged road network and an overburdened movement capacity.

Aerial Supply

Too little attention is being given to the possibilities of modern transport by air, notwithstanding the favorable results already achieved in various theaters of operations.

One is deterred, no doubt, by the high expenses involved, for air transport is very expensive. It should be borne in mind, however, that the maintenance of central logistic reserves to be transported by air is probably the only practical possibility to meet all the difficulties set forth here. In this respect we would like to repeat what Field Marshal Montgomery said during a lecture held before the Royal United Service Institution, namely that air transport is the best way to get supplies to most places, the only way to get supplies to some places, and the speediest way to get some supplies to all places.

Air transport centralized on a high level would enable us to maintain our divisions should normal logistic support fail or when operations proceed too rapidly, and to fill the gaps, if any, in the logistic system itself.

Air transport, independent of the road network and traffic congestions, could serve for the movement of both troops and required supplies.

Antiairborne and Antiguerrilla Defense

Translated and digested by the MILITARY REVIEW from a copyrighted article by General Wolfgang Pickert, Retired, in "Flugwelt" (Germany) September 1956.

NOTWITHSTANDING the conflicting views of the military experts on the forms of a future war, there is a general agreement as to the importance of air superiority. Apparently many have given superficial thoughts only to the question of how control of the air is to be gained and maintained. They simply take air superiority for granted without sufficient regard to the fact that the presumable enemy also is able to build and fly airplanes.

Without being in the position to elaborate further on the problem of this struggle for air superiority, it is certain that control of the air does give great strategic opportunities to a bold military leader. Complete air supremacy increases these opportunities.

Along with the inevitable attempt to annihilate the enemy aircraft industry, in this struggle for air superiority there is the requirement for neutralization of enemy airbases so long as the vertical lift aircraft which render airfields dispensable are not in common use.

Defense Against Airborne

In decisive ground operations, airborne operations play an essential part once air superiority has been achieved. Airborne operations are employed for vertical envelopment, to overcome terrain obstacles, and to seize enemy airfields in order to make them available for use in supporting and expanding air-landing operations.

Generally, airborne operations are most likely to be employed against a force that has lost air superiority and possibly suf-

fered reverses in ground operations. The defense against airborne troops is especially difficult when control of the air has been lost, ground operations are in a critical state, and reserves have been committed.

In such a situation only the antiaircraft artillery (AAA), especially the very mobile automatic weapons (AW) units, often will be quickly available for antiairborne defense. These units will be indispensable in the foreseeable future as airfield defense against low-flying aircraft. They will be needed in considerable strength not only on the battlefield itself, but also in depth. When motorized, they can be looked upon as a mobile reserve for the defense against airborne troops.

When enemy airborne troops jump into an area in which there are effective automatic weapons, they lose many transport aircraft and paratroopers during the jump; during the first minutes after the landing they will suffer still more casualties. The German airborne operation on Crete in 1941 and the British airborne operation at the lower Rhine River in 1945 are valid historic examples for this statement.

The defense against airborne troops is more difficult when enemy paratroopers land out of range of the antiaircraft automatic weapons or during the hours of darkness, which enables them to get ready for combat without interference by the defender. In this case the antiaircraft units, if committed, will meet an established enemy defense which they must contain with fire in order to gain time for the deliberate counterattack by reserves that may become available. Even in such a situation it still may be possible that mobile antiaircraft units can deny the enemy the exploitation of a surprise air landing when they are led with the necessary flexibility and boldness. This happened, for example, with the American airborne operation at Arnhem on 17 September 1944.

Furthermore, when we visualize that enemy airborne troops usually are heavily supported by ground-attack aircraft, we have a vivid picture of what is going to happen: The AAA units are in a very difficult position. They fight not only against attacking ground support aircraft, but also against the paratroopers in the air and on the ground. This combat mission gives an idea of the high and versatile training objectives necessary for the antiaircraft artillery units.

The modern "sky sweepers" should be examined to find out if they will be able to engage ground targets—that is, airborne troops—once they have landed. In the light of war experiences there is an urgent necessity for this dual employment of AAA weapons.

Antiguerrilla Action

There has been a considerable use of airborne commandos both in the Second World War and in Korea. These commandos, reinforced by well-armed and boldly led partisans, have proved to be a severe threat to communications, supply routes, and airbases. Mobile AW units often have been the only means available to deal with them. In the large rear areas of the German East Front, automatic weapons units were used repeatedly against partisans, for example, in the Jaile mountains in the Crimea and in the vast forest areas of the central and northern sector of the East Front. The possibility of the future employment of a great number of airborne infiltrators in our rear areas must be taken into account, especially when the enemy has succeeded in achieving even a temporary air superiority. An enemy with a weak air force still will be able to drop small infiltration teams in rear areas at night. These considerations show that it will be necessary to train AAA units for this difficult task of antiguerrilla defense without relieving them of their main mission—the defense against low-flying aircraft.

Antiaircraft automatic weapons units often will be the only mobile units with sufficient firepower to engage the guerrillas. The experiences of World War II in the air transport of automatic weapons proved the feasibility of transporting them over large distances to surprise the guerrillas. This will be improved with the further development of light transport aircraft and helicopters.

The Dual Mission

Defense against airborne troops is, however, only a secondary task of AAA. Their main mission is the defense against enemy air: in defense of ground forces on the battlefield and in the rear area; and in defense against low-flying aircraft and high-altitude bombers on airfields. This results in a dual mission: attack of air and ground targets (mostly on airfields, but also on the battlefield). It would be a misunderstanding of realities to forbid the AAA to engage in ground combat, for it must be adapted to this unavoidable dual task. These manifold missions will set very high requirements for the capabilities of the weapons, the vehicles, and—last but not least—the training of the troops. But certainly it is better to anticipate and train for all possible tasks in time of peace than to have to improvise in an emergency after having learned the lesson the hard way.

The Infantryman Under Nuclear Pressure

Digested by the MILITARY REVIEW from a copyrighted article * by Major E. O'Ballance, in "The British Army Review" (Great Britain) March 1956.

The views expressed in this article are the author's own and do not necessarily conform with War Office policy.—Editor, The British Army Review.

IN CONSIDERING the effect of the nuclear weapon on the battlefield most thoughts center primarily on two problems: "docking the tail," and cutting down on the number of vehicles. Much is written and spoken on these two subjects which mainly affect the services. By way of a change, a few thoughts and reflections by an infantryman as to how nuclear warfare applies to him may not be out of place.

Already we have been promised more digging and more marching—two hardy annuals—but what is to follow, and to what else is there to look forward?

In spite of the advent of the atom, conventional warfare will remain basically the same for the fighting troops up at the front. So far no one has suggested openly that infantry is obsolete although perhaps a few are of the opinion that it is obsolescent. A similar line of thought must have passed through the minds of military thinkers after the Battle of Rocroi in 1643 when for the first time in history massed artillery slaughtered the Spanish pikemen where they stood in a square. One can imagine the shaking of heads on the future of the infantry and the wholesale applications for commissions in the newfangled artillery. But that was over 400 years ago and the infantry is still here as large as life and just as necessary.

Nuclear Facts

Speaking in round figures and quoting press reports, there are a few factors about nuclear weapons and their effects from which deductions can be drawn.

Tactically, it may be that only the smaller nuclear weapons will be used on

the battlefield, because with the larger ones, although a bigger area would be covered, the center of the strike would be "over hit" and would be an uneconomical proposition. For the smaller weapons the rough danger area for unprotected men can be considered to be up to one mile from the point of impact, or ground zero, and slit trenches will reduce this distance by two-thirds. The deeper the slit trench and the better the overhead cover, the more this danger area will shrink.

The means available for delivering nuclear missiles include aircraft, rockets, and cannon. It is reasonable to suppose that an enemy would have similar means of delivery.

In Exercise *Battle Royal* a number of atom bombs and shells were used with varying success. Some were adjudged to hit headquarters, thus crippling formations and communications, while others were judged to have fallen wide of the mark, causing few casualties and generally doing little harm. But apart from maneuvers and make-believe, even if a suitable target presents itself and asks to be shot at, in practice there are a number of limitations which must be considered over and above the normal timelag in delivering the nuclear missile after the commander has made his decision.

Precision bombing would have to be used in the case of aircraft. This is affected by weather, ground, and opposition, to say nothing of the difficulty of picking out accurately a cleverly concealed position. With regard to the 280-mm cannon, in Exercise *Battle Royal* there was none of the preliminary firing which the artillery likes before it is prepared to guarantee absolute accuracy—the umpires generously allowing the cannon to hit where it is aimed. Ranging shots would, of course, give away surprise, so it is unlikely that from a distance of 20 miles a nuclear shell would be able to pinpoint its target the first time. The accepted margin of error may be greater than the danger area of the shell.

The cost of the warhead of such rockets as the *Corporal Mark II* necessarily must limit its use and the numbers available.

The deduction to be made from these limitations can be that nuclear missiles will not be showered on the battlefield like confetti.

Use and Threat

Even if it is agreed that nuclear missiles will be used only sparingly on special occasions, there is no doubt that by the threat of possessing and occasionally using them, the enemy will hope to alarm us into dispersing to a dangerous degree. In any case, vital ground must be held and to do this sufficient troops, mainly infantry, must be on the ground in such depth and so disposed as to hold the anticipated mass infantry attacks of an enemy. Too much dispersion would weaken the defenses and enable the enemy to filter through with little opposition. If we are to be tactically strong, someone has to stay and fight the old-fashioned type of battle.

From this we can deduce that while headquarters and other rear installations can make arrangements automatically for alternate sites and plans for moving quickly to them when necessary, we in the infantry can have no such comforting thoughts. We must stay put. So it seems that the only thing we can do is to reach for our shovels and dig ourselves in a little deeper. Our main worry is not so much the direct effect that a nuclear missile is going to have on us, but rather the aftereffects. It will hit us by interfering with communications, ammunition, and other supplies, probably in that order.

Communications

A successful hit on a headquarters would cause a period of uncertainty until the alternate headquarters opens up and

functions smoothly. This may mean that for a brief space of time, orders and instructions will not be forthcoming and no information can be obtained. The answer to this seems to be that commanders will have to take junior commanders more into their confidence as to their future plans than they do at present. This would enable the momentum of the battle to be maintained until fresh orders arrived. This is mainly a headache for the staff rather than the infantryman.

Within the battalion the case for duplication, or even triplication, of communications is strengthened, and all down to and including platoon commanders must have alternate means always working.

Ammunition

The amount of ammunition required to stem a massed infantry attack will be immense and the disruption of supply would be a serious factor to the frontline soldier. This is made more serious by dispersion and the fact that the infantry invariably will be holding larger frontages than is recommended by "the book." Standardization is a help here, but even so the case seems to call for a further reduction in the types of weapons we use.

With reference to small arms, it comes to mind that a section or platoon reserve will be necessary in the shape of 30 to 50 rounds to be carried by each man in addition to his own personal ammunition—so something will have to be eliminated to make way for this. With the new automatic rifles in use strict fire control will be necessary, otherwise, the forward defended localities will be rendered impotent owing to lack of bullets to fire.

Supplies and Equipment

Disruption of supplies will hit the infantryman in the stomach, so we shall require a neat, compact, dehydrated type of 24-hour ration of which two or three can be carried, much as is the emergency field dressing, to be used only when ordered.

Petroleum, oil, and lubricants will be in spasmodic supply and the infantry will be low on the priority scale, so we must plan without vehicles and be prepared to "carry our house on our back."

Training

Targets for nuclear missiles will be all types of supply points and depots—in fact, anywhere a crowd gathers—so full use must be made of the hours of darkness both for administration as well as training exercises. In training at night we stumble and fumble our way around for the simple reason that our eyes take time to accustom themselves to the darkness. The longer we stay out in the dark the better we can see. We tend to leave whatever we can, including all administration, until it gets light again.

The ideal answer is that companies—battalion and up to divisional headquarters—should go away for at least a week at a time to work and train only at night. There should be no movement during the hours of daylight. This was done at the beginning of the last war and the results had to be seen to be believed. After the third night everything carried on normally and we not only carried out exercises successfully, but also umpired and controlled them. On these "night training" weeks, practice should be carried out in drawing rations, supplies, petroleum, oil, and lubricants, in cooking and issuing meals, and in other routine tasks.

Summation

In considering the possible effects of nuclear warfare upon the infantryman it seems that generally things will be much the same, except that we shall have to make greater use of the hours of darkness for administration and movement. We also can expect disruption of supplies and must cater accordingly; with regard to mobility, we shall have to rely on our feet again.

Revolutionary War

Translated and digested by the MILITARY REVIEW from an article by Ximenes in "Revue Militaire d'Information" (France) February-March 1957.

Your men know how to fight among themselves but not how to fight the enemy.

—Malraux

MILITARY opinion today has become allergic to the very words, "revolutionary war." Every allusion to this problem arouses instantaneous reactions. Some deny that there are any other forms of war than those of classical war, others become embroiled in a new jargon, while still others discuss all war with a sort of inexorable fatality.

Because of the diversity of its aspects and the results obtained it is difficult to define revolutionary war in a clear-cut manner. For this reason the problem will be delimited here only by study of the armed struggles undertaken by minorities progressively controlling the population and furnishing motives for reaction against the authority it refuses. From the host of manifestations observed, a series of basic phenomena have been selected and classified in accordance with their effects. Then they have been regrouped into phenomena which appear characteristic of revolutionary conflicts. Finally, we have attempted to determine the deep underlying forces which, upsetting the apparent relationship of forces, make possible such things as the surprising victory of David over Goliath.

Processes

Initially, the revolutionary minority presents a picture of weakness in relation to the governmental apparatus which appears formidable in comparison. All the efforts of the rebels will, obviously, tend toward the destruction of this governmental apparatus, while at the same time constructing their own system.

The elementary manifestations of revolutionary war are destructive, attacking the established order and its defenders, and constructive, building up the will to fight, the means of combat, and the new forms of the state and its society.

Intimidation

The overthrow of the old social body is effected and reinforced by means of the techniques of intimidation: by the use of crowds (monster meetings and parades), systematic terrorism, sabotage, and guerrilla actions.

In systematic terrorism, effort is not directed solely at eliminating, by threat or assassination, personalities hostile to the cause. What is aimed at is not the removal of an obstacle, but a general psychological effect. Preferred treatment may be given representative individuals of certain groups (bankers, industrialists, land owners, statesmen, and functionaries) solely for the purpose of reaching the groups they represent, and reducing them to the defensive or inciting them to flight.

The same is true of sabotage. The burning of crops is not aimed at the "tactical" objective of the crops themselves, but prevents the peasants from paying their taxes or rapidly discourages them from it.

As for guerrilla action, its principal characteristics often have been described, but its true effects do not reside in the losses inflicted on the enemy or in the armament recovered. By harassing the administrative police and military apparatus of the order, it incites it to degener-

ate. Finally, it alienates the population from the government by provoking permanent insecurity.

Demoralization

At all times and at all levels the demoralization of the politico-military means of the established order is pursued by negation of successes, exaggeration of failures, skepticism concerning the justice and efficacy of measures taken, and the questionings of the good faith of those directing it. The effort thus is made to take away from the agents of the government their reasons for acting, or at least to cause them to doubt the worth of what they are doing.

This action is complemented by an attempt to influence neutrals. Those who have taken no side, and cannot be terrorized nor demoralized immediately, receive all the appeasements desirable and are buried under floods of justifications. The main thing is to keep them out of the struggle until the moment when their case can be settled permanently.

Elimination

At every occasion the elimination of the opposition is continued. Selective or systematic terrorism and guerrilla action already have permitted the attainment, in part, of this objective.

But it is when the test of strength becomes possible under conditions favorable to the revolutionists that the latter are able to resort to important means of battles of annihilation, physical liquidation, and mass deportations and executions. There is no quarter for the stubborn cases which have resisted intimidation and demoralization.

The neutrals then are called on to name their choice.

To arrive at these results the rebels have had to construct the weapons of success one by one.

Constructive Techniques

The revolutionists first must find the active elements, convince them of the necessity of acting together, forge their will, instruct them, and set them in their places. Two techniques are interwoven here: the selection and basic training of the active elements of all types (leaders, orators, propagandists, specialists in a certain milieu, "volunteers," and cadres); and the formation of these cadres into cells for the control of the different human milieu and organized groups.

Individual action does not suffice. Use is made of the latest resources of experimental psychology for sensitizing the indifferent portion of the population and for converting it. This technique is psychological impregnation—the release of stimuli, the elaboration of slogans adapted to the situation, the incessant repetition of affirmations, and the systematic reiteration of biased information by all means of dissemination.

Trained by the active elements and indoctrinated daily, the popular mass is prevented from falling back again into its habitual indifference. Its continued engagement in the struggle is guaranteed by formation of trade and agricultural unions, youth movements, sports organizations, veterans' groups, and local committees in a pyramid extending all the way from the elementary social cell to the "central committee."

The popular mass thus is progressively changed into an organized and animate group. At the same time, it is dissociated little by little from the legal government by the effect of the destructive techniques.

With the total engagement of the population, the base of the revolutionary government is established as a test bench for the reforms characteristic of the future order.

Finally, the liberation of vast zones occurs, and the conquest of the area succeeds the conquest of thought. The revo-

lutionary apparatus, patiently perfected in secret, now is revealed in the full light of day.

Classical Replies

Revolutionary war, however, is not developed in accordance with its own laws alone. The revolutionists are not immune to classical politico-military means. On the contrary, they are confronted constantly with the reactions of the established power which cannot remain passive very long and is forced to defend itself. It attempts to adapt itself to the conditions of the struggle and replies in a more and more violent manner.

First, police, judiciary, administrative, and military action is taken to repress or eliminate the leaders and the centers of opposition, both open or clandestine.

This is followed by a period of pacification during which time a "new look" administration attempts to establish itself with the mission of restoring the disturbed social order and to carry out the most urgent reforms.

Then, area defense is undertaken—consisting of solidly occupied bastions, of gaps filled in with "self-defense" militia forces or territorial units, and of regrouped mobile and trained reserves—in the hope of being able to deal decisive blows to the revolutionary forces.

The final counteraction, of course, is a war of annihilation when the relationship of forces tends to become balanced. The established power attempts to enlist the support of the entire population, but in desperation will call on outside help if necessary.

Three Phases

The majority of studies on revolutionary war have attempted to break it down into phases which are easier to perceive than to demarcate. These phases are, basically, only the periods of time during which the different effects produced by the combined employment of several techniques are manifested. One can come closer to the reality of the phenomenon by defining three principal processes into which the activities already studied are organized at all times: crystallization, organization, and militarization.

Crystallization is the rallying of wills around common motives for fighting. (It is the "why we are fighting" of the Americans.) It obviously is progressive and from the time of the sowing of the first seeds by the propagandists of the active elements, is reinforced constantly by the double play of the attack on the morale of the adversary and the psychological motivation of the popular mass. The tempo of this expansion and of its increase in density is not constant. It varies in accordance with the degree of crystallization already achieved and the reactions of the adversary.

Organization includes the installment and functioning of parallel hierarchies (trade unions, youth movements, veterans' groups) and their full action in the partisan and supporting base zones.

Under militarization comes the simultaneous constitution and engagement of an increasingly complex military apparatus engaged bit by bit as it is created. The organization and engagement of the units go hand in hand. At first limited to small teams and little by little filled out and assembled into local bands, the armed forces depend more and more on the armed population ("autodefense" militia) and are divided into territorial units (guerrillas) and units of intervention. Even if intervention units when grouped into a principal force have a great many characteristics which render them comparable to a classical army, the symbiosis of the territorial units and of the armed population truly is peculiar to revolutionary war.

But the continuity and the tempo of revolutionary war and the three processes

discussed do not develop independently. On the contrary, they act and react continuously on one another in perpetually changing combinations.

When the action of a small nucleus of active elements has created a sufficiently firm conviction in a small group (crystallization), it is possible to allocate responsibilities within this group (organization) and then to send a small shock force out to seize the weapons of a police station (militarization).

A little later, following the intensive training of a large unit, a major ambuscade (militarization) can be exploited methodically by propaganda with the local population (crystallization) and permits the rallying of the latter followed by the installing of a village council (organization).

On a broader scale, following the installing of the village, district, and province committees in a new territory (organization), propaganda and the courses of political education provoke the appearance of volunteers (crystallization) who, after a period of instruction, are engaged in a first battle (militarization).

Estimate of a Situation

The general situation may be estimated and even defined, at any given moment, by the degree of development of each process at the instant under consideration. Inversely, a false estimate of the situation can be arrived at if one does not know, or erroneously evaluates, the development of certain processes.

For example, if the population of a territory appears to be won over by the revolutionists, but if it is not enframed by efficacious parallel hierarchies and if it does not possess a close secular arm, a sufficiently dense and adroit military occupation will be able to change the situation (crystallization good, organization and militarization weak).

On the contrary, if the majority of the population is won over to the revolutionary ideology, if clandestine leaders are in place in the principal echelons (crystallization and organization strong), the revolutionary military apparatus may be rudimentary, awkwardly managed (militarization weak): the situation will not be as good. The undermining of the popular mass may not be as thorough as a superficial study of the enemy could cause one to believe.

The famous statement of Mao Tse-tung thus becomes very clear and strictly conformistic:

We are opposed to a purely military point of view and to the principle of roving bands, but we look on the Red Army as an organ of propaganda and a factor of organization of popular strength.

The interdependence of the three processes is indicated perfectly: no roving bands because these do not permit a continuous development of the processes of crystallization and organization of the people.

Revolutionary Bases

As long as the revolutionists live and fight in a hostile environment, the play of the processes is slowed by contrary influences (ideologies hostile to the revolution, action of the legal authorities, and the government's army).

The establishment of a firm base for operations considerably modifies these conditions. The solidly uniform total integration of the inhabitants and the military power represented by the armed popular mass supporting the principal force accelerates the processes and confers increased efficacy on the techniques.

After the establishment of the Provisional Government the supporting base becomes a kind of microstate. It constitutes, for the revolutionists, a type of guarantee of the free functioning of processes and draws new vigor from the fact

that it is a prefigure of political and social equality. It makes a start with the postrevolutionary economic forms.

Basic Facts

Revolutionary war, therefore, presents the appearance of a politico-military struggle of increasing complexity and extensiveness. Its modes of action during recent years generally have proved themselves superior to those which have been opposed to it.

But it can be affirmed also that its successes are not due solely to the application of new principles of war, to the employment of the weapon of psychology, or even to the technical worth of the revolutionary armies. In spite of their efficacy these factors do not suffice for ensuring success.

In fact, the classical principles of war are applicable to all revolutionary wars. None of the so-called "new principles" appear to have a sufficiently general application to serve as permanent rules.

The employment of the psychological weapon confers coherence and continuity to politico-military operations. This psychological weapon prepares the conditions of success and permits its exploitation to the maximum extent, but it does not create it. The trial of force which puts political and military combat means into action is indispensable for obtaining the decision.

Revolutionary armed forces, in spite of the effort devoted to their improvement, generally are inferior to a good regular unit. This is true even of their principal force.

The superiority of revolutionary war resides in two levers of extraordinary power: the conquest of the population, and ideological conviction.

The theoreticians of classical war insist on the tyrannical influence of the "terrain" and, desirous of getting as close as possible to the reality of modern conflicts, often substitute for this the even more indefinite term "enviornment." It is in this way that the population takes its place among the factors of the decision through the bias it lends to geographic, economic, political, and demographic considerations.

To consider the population as a simple element of decoration of the field of battle is not unreasonable when thinking of combat of the past. From the tournament of the Middle Ages to conventional wars, there is no change in nature—only a change of scale. But in revolutionary wars, reduction of the population to the status of an accessory clearly is improper, for it is engaged entirely in it wherever it is and whatever the weapons employed. The harassment, sabotage, and paralysis of the adversary is everyone's business, and not just that of the specialists alone.

The population must be considered, therefore, as a means of varied uses and not solely as a source of recruitment or an apparatus of production.

To achieve this conquest of the human environment, it must first be understood. The revolutionists are well armed for this. First, usually they come from the milieu they attempt to conquer and share its natural reactions. Afterward, at a superior level, observers take over these elementary data and interpret them in accordance with a strategic line.

It is necessary first to detach the population from the authority which controls it. Here, the techniques of intimidation, disintegration, and demoralization find full play.

At about the same time, the effort is made to gain the attention of the popular mass. The gamut of the processes is extended, and even demagogic recipes have a place. Interest is shown in the welfare of even the most unfortunate, and promises of amelioration and spectacular suppression of particularly outstanding abuses are made.

Finally, more and more alienated from

the power which controlled it and lending a more attentive ear to the new leaders, the population is progressively *controlled.*

Control

This control presents a double aspect. Defensively, it is the prevention of the legal government's resumption of authority, the muzzling of the recalcitrants until the time is ripe for eliminating them by persuasion or violence, and the calming of the impatient partisans. Constructively, it is the setting up of party organizations, encouragement of the timorous, and continual conversion of the neutral.

In the purely military domain the action described by Mao Tse-tung then occurs. This is the movement of the population against the enemy, using whatever weapons they can find. By this the classical forces are immobilized and condemned to striking into a vacuum. It is the lion tormented by bees—or, again, the brawl in the square where a brilliant fencer finds a mob of people against him. Pushed about, losing sight of the individual who has provoked him, his thrusts lack accuracy even when the crowd is not hostile.

Thus it is that revolutionary conflicts terminate unless last minute help arrives: the principal revolutionary force wages battles of annihilation against an adversary who is immobilized, and who already has been wounded by the people in arms.

Ideological Conviction

It is not so easy to get the population to play the role of shield, to get it to accept the thankless mission of the laborer or the more exalted but deadlier missions of the guerrilla fighter and the partisan. It is more apt to content itself with a prudent and natural reserve than to participate actively, and it will persevere in its exhausting effort only to the extent that it knows for what it is fighting.

If the revolutionists succeed in persuading an increasingly large popular mass to fight a determined and continuing war, it will be because they methodically build up friendly morale, and no less methodically destroy the morale of the adversary.

Conclusion

Revolutionary war, "total war," carries the conflict to the heart and conscience of societies. It is carried on, therefore, in an infinitely vaster domain than classical war to which it cannot be reduced. The triple play of its techniques is expressed in a subtle counterpoint and tends toward a single objective: the overthrow of the established order and the seizure of power.

Its successes are impressive, but it is as erroneous to regard its triumph as unavoidable as to underestimate its amplitude and depth or to consider its field limited to the domain of weapons only. The play of the processes includes all human activities. He who would conquer must, therefore, fight in all these domains. One cannot separately block crystallization, checkmate organization, or destroy the military apparatus. All must be attacked simultaneously.

A correct analysis of the general situation, at least under the triple aspect under which we have attempted to present it, should permit a determination of the various measures susceptible of restoring peace. Under no circumstances, however, would one think of reestablishing the *status quo ante.* Whether political, economic, social, or military, the solutions contemplated must be applicable to the various domains and their efforts joined to create a new equilibrium.

The army is able to furnish valuable information with regard to the problems to be solved, but it is not incumbent on it to choose the proper remedies. On the other hand, it can—and must—with the knowledge it possesses with regard to the "over-all mission," align itself with the measures to be put into effect and make every effort to bring about their triumph.

BOOKS OF INTEREST TO THE MILITARY READER

THE REICHSWEHR AND THE GERMAN REPUBLIC: 1919-1926. By Harold J. Gordon, Jr. 478 Pages. Princeton University Press, Princeton, N. J. $8.50.

BY MAJ HARRY H. JACKSON, *Inf*

The purpose of this book is to portray the development of the German Army created after World War I, to analyze its policies, to describe its activities, and to illuminate its relations with the government of the republic and with the political parties.

And this Dr. Gordon proceeds to do in a most effective and comprehensive manner. The author's thorough discussion of the complex relationship between the *Reichswehr* and the German society of which it formed a part is reading of tremendous value to those who have more than a passing interest in the role of the military in a democratic society.

Dr. Gordon's evaluation of the German Army and the Weimar Republic indicates that the *Reichswehr* was created from an alliance between the government and the leaders of the Imperial army uniting to restore social and political order. The hostility of much of the working class, important facets of the intelligentsia, and most of the middle-class liberals led to the nonparticipation of these elements in the long-term volunteer army.

Those who may participate in activities involving the army of the German Federal Republic will find this treatise most profitable as a background to the military-political relationship existing today in Germany.

MILITARY TRIAL TECHNIQUES. By Major James L. Spratt. 322 Pages. American Guild Press, Dallas, Texas. $4.98.

BY LIEUTENANT DONN E. DAVIS, *JAGC*

Major James L. Spratt is not a lawyer, and has not written this book for lawyers. His expressed intention was to provide "'nonlawyer' military personnel with a simple, comprehensive and legally sound outline of military courts-martial." He has accomplished this purpose.

The young line officer, with no legal training, who has just received his first assignment as trial or defense counsel on a special court-martial will be very happy to find in one place the information found between the covers of this book. The book will be valuable to him as an introduction to the procedural aspects of trials by courts-martial and to some simple principles of trial technique. More important, probably, will be the use he will make of this book as a reference, where he can look for help in solving some of the many problems with which he may be confronted.

Any criticism of *Trial Techniques* would be fairly minor. Some of the substantive law has become erroneous because of later court decisions (an anomaly faced by any legal writer). But these criticisms are minor in view of the good that the book can accomplish in making for the more orderly administration of military justice in special court-martial cases.

Trial Techniques is suggested unhesitatingly to "nonlawyer military personnel" who may sometime have to act as counsel before a court-martial.

EGYPT'S ROLE IN WORLD AFFAIRS. By Emil Lengyel. 147 Pages. Public Affairs Press, Washington, D. C. $2.50.

BY LT COL HAROLD E. BEATY, *CE*

As cycles of history continue, Egypt once again comes to the foreground in world importance. From the days of Moses and the Pharaohs to the present this country has risen and fallen in culture, economic, and political significance. The key to the stability of the Middle East rests with the behavior of Egypt in the Arab world. There appears to be some question as to which country in this part of the world has the prestige among the moslems, and Egypt is playing a strong bid for this position. In the past the United States has given but scant attention to Egypt and the Middle East. This area was considered primarily the concern of the French and the British. However, today the United States recognizes that the situations in the Middle East could be the starting point for a great war.

With political instability, overpopulation, and lack of raw products and industrial facilities, this country finds itself weak and sorely in need of outside economic assistance, struggling to maintain itself and to receive international recognition.

Since Egypt forms a strategic part of the Middle East, which is a power vacuum, Mr. Lengyel explains how this nation is attempting to fill this void. In a most pleasing and readable style, the author carefully has shown Egypt's relations with the nations who are affecting her future including the Arab countries, Israel, Soviet Russia, France, United States, and Great Britain. He traces the ingrowth of Russian influence in this area, and shows why America has adopted the Eisenhower Doctrine specifically at this region.

The nature of the Arab world is revealed here, and the author gives special attention to the importance of Israel as it struggles for coexistence among its hostile neighbors. The Suez Canal controversy, initiated by Egypt's seizure of this strategic waterway, is analyzed carefully by Mr. Lengyel. This book is an excellent introduction to a better understanding of the critical situation in the Middle East.

THE SIGNAL CORPS: THE EMERGENCY. United States Army in World War II. By Dulany Terrett. 383 Pages. Superintendent of Documents, Government Printing Office, Washington, D. C. $3.50.

BY LT COL WILLIAM D. MCDOWELL, *Inf*

The development of radar, second only to nuclear fission as the greatest scientific advance of the war, is the most important story of this valuable addition to the list of reference works on World War II.

The first part of the book is devoted to the history of the Signal Corps from its earliest days up to World War II. Part Two continues the story up to the eve of Pearl Harbor and covers the rapid expansion of the Signal Corps during limited and unlimited emergencies. The final chapter describes in meticulous and objective detail the radar preparations and installations in Hawaii just prior to World War II, and ends with the optimistic Signal Corps-Air Corps opinion: "If nothing unexpected intervened, aircraft warning could probably be functioning as an integrated service [on Oahu] by about the seventh of December [1941]."

This volume makes interesting reading for both the military and nonmilitary reader. A 36-page appendix containing a complete listing of World War II Signal Corps equipment will be of especial interest to the communications expert and the amateur.

UMFASSUNG UND DURCHBRUCH. By Oberst Paul Curti. 232 Pages. Huber & Co., AG., Verlag, Frauenfeld, Germany. $4.30.

ORIENTAL DESPOTISM. A Comparative Study of Total Power. By Karl A. Wittfogel. 556 Pages. Yale University Press, New Haven, Conn. $7.50.

BY COL HEWITT D. ADAMS, *USMC*

This book is the product of over 30 years' research by one of the world's leading scholars. Indicative of the scope of his research is the bibliography of over 1,200 titles listed at the end of his work.

Today, when an understanding on the part of the West of the basic forces at work within the Communist and neutralist nations assumes such importance, this book serves as an excellent background to such understanding. The author traces the growth of despotic forms of government with emphasis on cause and effect. He develops an answer to the Communist ideology which shows that communism is not "progressive" but "retrogressive." While he writes primarily for the scholar, he gives the reader ammunition to answer arguments of communism on both the ideological and practical levels.

The tendency of the neutralist Asiatic nations to embrace a despotic form of government—retrogress to past forms—is emphasized. The danger is most succinctly pointed out by the statement:

Man is an ideological animal; he acts in accordance with his innermost conviction; and this is true whether religious or secular issues are at stake. A comprehensive philosophical and political creed, such as communism, provides its adherents with a map of the world, an arsenal of operational directives (a 'guide to action'), a flag, and a powerful political myth. It inspires those who hold it with supreme confidence and paralyzes those among their enemies who are impressed by it.

THE HISTORY OF GERMANY. From the Reformation to the Present. By Minna R. Falk. 438 Pages. The Philosophical Library, Inc., New York. $6.00.

NATIONAL COMMUNISM AND SOVIET STRATEGY. By D. A. Tomasic. 222 Pages. Public Affairs Press, Washington, D. C. $4.50.

BY LT COL HOWARD L. FELCHLIN, *Inf*

The history of the Tito-Kremlin relationships represents a fascinating and vital field for critical analysis and thoughtful contemplation. By means of "national communism" as espoused by the present regimes in Yugoslavia and Poland, can the Soviets satisfy the basic human needs and aspirations of the subjugated masses and still retain their monolithic control as the guiding force of international communism? Professor Tomasic indicates that this is the fundamental dilemma which confronts the Soviet hierarchy.

Considering the title, the author appears to have placed undue emphasis on the history of Titoism. But he warms up to his task at a rapid rate when he discusses the crucial events that have transpired since 1948. The lack of factionalism in the Yugoslav Communist Party, the absence of the Soviet Army in Yugoslavia, and the failure of Soviet efforts at economic penetration and subversion convinced Stalin that Tito meant what he said when he stated "every one shall be master in his own house."

The author's treatment of revolts in other satellite countries is somewhat cursory. However, he does indicate that the basic problem confronting the Soviet regime is to "establish" in the satellite countries top leaderships that can command the genuine support of the masses by satisfying their material and psychological needs while at the same time demonstrating "a high degree of accommodation to Moscow." A careful reading of this book may well help the military reader to study this problem.

SEAFARERS AND THEIR SHIPS. 96 Pages. The Philosophical Library, Inc., New York. $3.50.

LIMITED WAR. The Challenge to American Strategy. By Robert Endicott Osgood. 315 Pages. The University of Chicago Press, Chicago, Ill. $5.00.

BY LT COL WILLIAM D. MCDOWELL, *Inf*

Although not specifically written to portray the Army's position in modern warfare, Dr. Osgood's thesis on limited war is a very astute presentation of the case for the continuing necessity for adequate ground forces.

Dr. William W. Kaufmann of Princeton University presented this line of reasoning last year with his analysis of *Military Policy and National Objectives.* Unknowingly, perhaps, Dr. Osgood has written the sequel.

The basic premise of *Limited War* will not be universally accepted in America. Most Americans are oriented on the "unconditional surrender," all-or-nothing philosophy of war and will hesitate to accept anything short of "total victory." Limited war philosophy makes way for two "victors"—or perhaps two "equal losers." It also makes possible the continued existence of civilization.

Dr. Osgood presents his case in these words:

The very fact that a war remains limited although belligerents are capable of imposing a much greater scale of destruction assumes that neither of the belligerent's objectives constitutes such a challenge to the status quo *as to warrant expanding the war greatly or taking* large risks (*emphasis supplied*) *of precipitating total war.*

Dr. Osgood's thesis, however, is possessed of sufficient flexibility to satisfy the most aggressive individual. Thin red lines on the map do not necessarily represent either Iron or Bamboo Curtains behind which there is sanctuary. The political objectives of limited war, he believes, must be determined in context with the existing political situation.

The final chapter is a concise and yet comprehensive statement of Dr. Osgood's point of view:

Some advocates of tactical airpower notwithstanding, there is little military support for the view that 'mobile striking power' can provide this capacity in the absence of substantial ground strength —except, perhaps, in a very few islands and peninsular positions.

This thesis should be considered in full context with recent events:

1. The drastic contraction of ground forces in Great Britain.

2. The recent reduction of ground forces in the USA.

3. Current power struggles in Southeast Asia, South Africa, and other underdeveloped areas.

4. The now existing psychological effect of the "great deterrent."

Dr. Osgood has performed a major service in correlating the experience of military men and diplomats into a unified work that permits him to arrive at valid political conclusions. Like Kaufmann's volume this work should be required reading for students of all the War Colleges, and all civilians who will ever have a voice in politico-military diplomacy.

HIGH SPEED FLIGHT. By E. Ower and J. L. Nayler. 227 Pages. The Philosophical Library, Inc., New York. $10.00.

RADIO AIDS TO AIR NAVIGATION. By J. H. H. Grover. 138 Pages. The Philosophical Library, Inc., New York. $6.00.

EISMEERFRONT 1941 (DIE WEHRMACHT IM KAMPF, BAND 9). By Wilhelm Hess. 169 Pages. Kurt Vowinckel Verlag, Heidelberg, Germany. $2.50.

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